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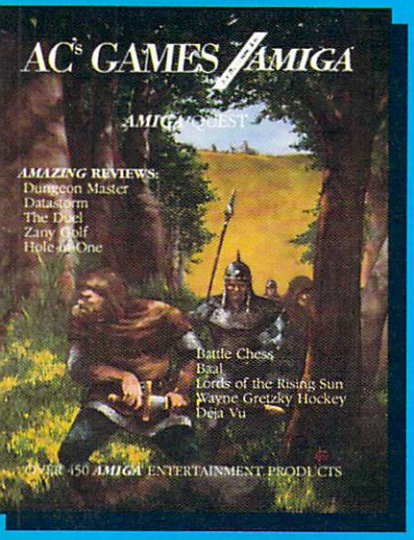
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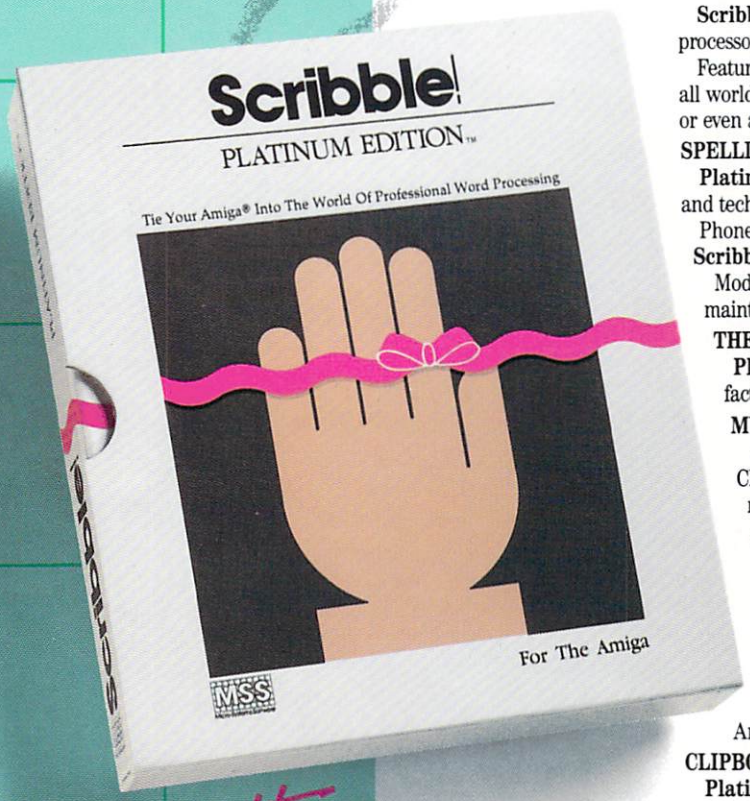
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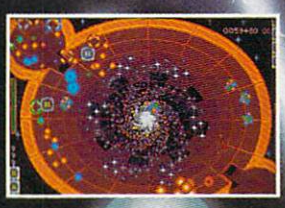
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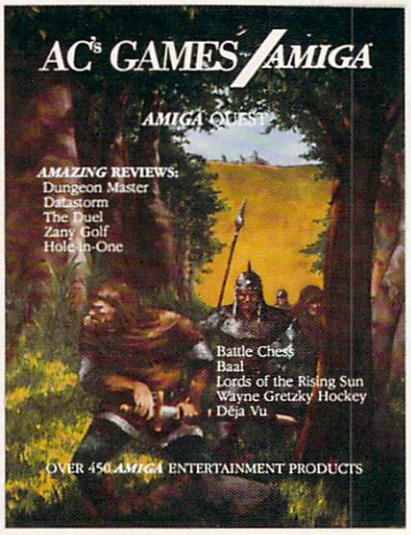
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Mayfair Computers — Milwaukee
Mom's Computers — Stevens Point
River City Software — La Crosse
Software City — Racine
TMW Software Inc. — Wausau

Wyoming
Byte Emporium — Laramie
Computer Works — Laramie

Outside of the United States

Canada
Compute or Play — Alberta
Computerworks — Alberta
Computer Shop — Alberta
Data Pro — Alberta
Computer Shop of Calgary — Alberta
The Software House — Alberta
Hindsin Computing — Alberta
Red Deer Micro Systems — Alberta
Memory Land — Alberta
Compu Care — British Columbia
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Maxwell Office Equipment — Abbotsford, Melburn
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Amazing Mail

Dear AC:

As you are aware, Word Perfect Corporation's commitment to developing for the Amiga has been the subject of much discussion. At one point, WPCorp officials had announced that they planned to pull back all future product development for the Amiga. Reaction from a large number of Amiga users persuaded WPCorp officials that our position regarding product development for the Amiga should be reconsidered.

As a result, WPCorp will continue development of WordPerfect for the Amiga. WordPerfect 4.1 is the most current version. We are currently working on an interim release of the product that will include minor enhancements and fixes with the software. As soon as that is released, we will begin working on a new version of WordPerfect. We will also continue to maintain and provide interim releases of WordPerfect Library for the Amiga.

It is true that WPCorp has scaled back its development staff for the Amiga. The primary reason for the cutback is the fact that sales of WordPerfect for the Amiga have been low. Sales were good when the products were initially released, but they declined significantly soon afterwards. Profits from WPCorp's Amiga products were not high enough to cover the costs of the Amiga development staff. So in order to make the Amiga division profitable, WPCorp executives decided to scale back the division.

Currently there are three full-time Amiga programmers and two full-time testers working on WPCorp products. We also have a marketing manager in addition to our regular Amiga customer support staff. We definitely plan to continue supporting WordPerfect and WordPerfect Library for the Amiga. We had begun development of PlanPerfect, WPCorp's spreadsheet, for the Amiga, but we chose not to pursue this so that we may concentrate our limited resources primarily on the continued development of WordPerfect.

As a result of customer requests, WPCorp began preliminary development of a 6.0 version of WordPerfect that includes support for graphics. The current code in WordPerfect 4.1 will not allow the addition of graphics capability. To develop a 6.0 version of WordPerfect would require that we completely rewrite the program from scratch, or that we wait until 6.0 equivalent is available on another machine so that it could be ported over to the Amiga. Using either of these two methods is a very costly and time-consuming process, and it would take one to two years and maybe more to develop a 6.0 version of WordPerfect. Given the timing and resources available, it is difficult to commit to a 6.0 upgrade at this time. However, development will move incrementally towards that goal.

Once again, WordPerfect Corporation is committed to supporting to the Amiga market. This commitment is evidenced by the fact that WPCorp is one of the few companies that offer toll-free support for its Amiga products. We regard the Amiga computer and its users very highly, and we're proud of our products for the Amiga.

Sincerely,
Rebecca Mortensen
Amiga Products Publicist

This may not be 6.0, but it is still good news for Amiga owners. It also shows that WP is an open minded company that is willing to respond to it's customers feedback. -=MM=-

Dear AC:

I finally got the time to write you! Please send me an outline for submitting articles to Amazing Computing.

Here is a hint for you growing Amiga owners. I cannot find this documented although some of you know this trick. The AmigaDOS manual does not tell you how to copy files from an outside directory to the current directory without specifying the current directory as the destination. The answer is very simple and I was dumbstruck when I figured it out! Here is an example of what I used to do and the trick.

```
1> cd df0:devs/printers
1> copy df1:devs/printers/#? to df0:devs/printers
```

Boy that was a lot of typing and any mistakes made me type it in again! OK, now for the easy way;

```
1> cd df0:devs/printers
1> copy df1:devs/printers to ""
```

The double, double-quotes tells AmigaDOS to copy the files to the current directory which is where I wanted them to go! Now how many of you CLI buffs knew that one?

A Loyal Reader and Hopeful Contributor,
John B Preston
Pensacola, FL

Thanks for writing with this hint. It will save me a lot of typing! -=MM=-

Dear AC:

In an imperfect (Amiga) world, all too often filled with hype without substance, promises unfulfilled and the siren call of "user friendly", it's nice to find a product that does everything it promises and a company that does even more!

I'm speaking of Great Valley Products (GVP) and their Impact 500 Hard Disk/RAM expander add-on for the A500. Contained within a rather mild-mannered, Amiga-tan "box" sitting just left of "Ctrl","Shift"and "Alt" is all the magic needed to turn a 500 into a serious computer. Once those two eyes...one red, one green... start winking at you, it's off to the races!

Background: I'm not a programmer, nor am I a game-only user. I'm a moderate-to-heavy word processor user (full-time professional writer/producer), a sometime spreadsheet and database user and a lover of utility programs. While not a graphic artist, I do desktop publishing professionally (through a professional graphics house on another computer—the "M" word) and semi-professionally on the Amiga. I am investigating the Amiga in professional video applications, namely high quality desktop-produced presentations and interactive video instruction. System configuration: A500 with 512K RAM/clock expansion, external 3.5" and 5.25" (for IBM ASCII files) drives, GVP 30 MB Autoboot

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Impact 500 HD with 2 MB autoconfig. RAM, yielding a 3 MB A500.

To say the impact 500 does everything it's supposed to do is to take away from the real beauty of the system for a guy like me. (Remember, I am a serious user. I am not a tech!) The GVP unit transforms the 500 into a very fast (by comparison to a non-HD system), very reliable, near idiot-proof machine that NEVER GETS IN THE WAY OF WHAT I'M DOING WITH THE COMPUTER.

Thanks to some well written software, the drive was incredibly easy to format and partition. Its operation is very quiet, except for some fan noise. Loads, saves and even directory listings are like lightning, thanks to buffering on individual drives and HD partitions that's like having FACC II operating continuously in the background. And with three partitions, everything is neat and accessible!

Still, it is an imperfect world. So, what went wrong? Well, GVP's claim that any 150ns or faster 1-meg x1 RAM chips would work was wrong. After buying and installing 16 110ns chips, I experienced terrible memory problems. Many programs wouldn't even load properly. What to do? Call GVP.

That I did...and I got through on the first call. In fact, every call was answered quickly and courteously (thank you Lisa and Mary). Was told by a very calm and confident voice on the other end (thanks, George) that the company had determined 80ns or faster(!) chips were needed, after all.

Now for the best part. When I informed GVP that my chips were not exchangeable, GVP OFFERED to exchange them at no charge and did so willingly. They even gave me their 800 phone number, for future calls. That, friends, is what I call customer service administered on a professional level.

More than that, what GVP demonstrated is 1) a well defined concept of who they are in the marketplace, 2) an understanding of what they must do to achieve the high position in that marketplace they feel they rightfully deserve and 3) a full-time commitment to live up to the demands of the position they have carved out for themselves. For my part, the entire Amiga community could benefit from more of that kind of thinking. Yes Commodore..."That one's for you!"

GVP, my hat is off to you. Thank you. I'm writing this because I want others to know about a first-class product and a first-class company.

Best regards,
Jerry Smithers
Creative Consultant
Omaha, NE.

Dear Amazing Computing:

I have been attempting for the last week or so to fully understand the workings of the new RAD: device in Workbench 1.3 and I believe that the following information may be of help to other readers. I have been using a RRD (recoverable RAM drive) for some time now available in the public domain (VD0:) and in updating some of my disks I thought that it would be worthwhile to use official RAD:. Many of my boot disks place files such as word processing spell checkers for example in VD0: for faster checking etc. A typical segment of the startup-sequence would be:

```
mount vd0:
if not exists vd0:dictionary
copy words:dictionary to vd0: quiet
        etc
        endif
        ....rest of sequence
```

I tried this substituting RAD: for VD0: on both 1.3 Kickstart and 1.2 Kickstart machines with no success. The machine would just go into limbo on a warm re-boot and I just could not get RAD: to work. I was just about to give up when I tried as a last resort the following:

```
....Usual startup-sequence stuff
execute s/radstartup
....Rest of sequence

file s/radstartu
    mount RAD:
    if not exists RAD:dictionary
    copy words:dictionary to RAD: quiet
    etc.
    endif
```

The file radstartup is IDENTICAL to the code lines which cause the problem above but now there are no such problems. The RAD: device works well and has caused no problems.

I tried just about everything I could think of (including changing Bootpriority, highCyl values, formatting RAD: etc) before stumbling upon this heaven sent solution which works on a 1.3 Kickstart A500 with 1 MB and a 1.2 Kickstart A2000 with 5.5 MB.

I hope the above will assist other users with the irritating and frustrating experience I suffered though.

Congratulations on the continuing high quality of the ONLY worthwhile Amiga specific publication available. Keep up the excellent work!

Yours Sincerely,
Dr. Richard Holder
E. Sussex, UK

Dear AC:

I have just received Volume 4, Number 5 issue of AC, and I can't help myself, I have to tell you folks-You're knocking me out! Just when it gets to the point where I wonder if it's worth the effort to bring in the trash from the mailbox, there you are. Today, at least, it was worth the trip. (The rain doesn't even phase me, since my AC is so carefully wrapped. Simulated sunshine, via US Postal Service!)

Any one of several articles would have included instant purchase if it were not for the subscription that brings AC home already. David J. Hankins did me a favor with his Lattice C 5.02 investigation, Oran J Sands cranks out yet ANOTHER great background piece, David Martin illuminates the darkest corners of the Amiga, and of course the Bandito always provides the best inside info most of us will ever see.

Special acknowledgement is due, Steve Bender's very good coverage of a subject that most people refuse to accept as real. If he survives the power series intact, perhaps he could tackle the absolute worst topic-ESD. (Depending on circumstances, my Section Chief calls static one of two things: Voodoo or Excuses.)

I've got to tell you, the piece served up by Andre Theberge was a real winner. I'm debating whether to wait until this weekend to write, and tell you how they worked out for me. But no, I need you folks to hear this right away!

I can't stop without mentioning the cute little MIDI adapter by B.S. Winslow.

This is another example of a very simple solution that works well. I expect that a

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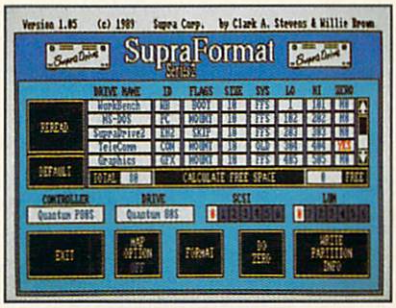
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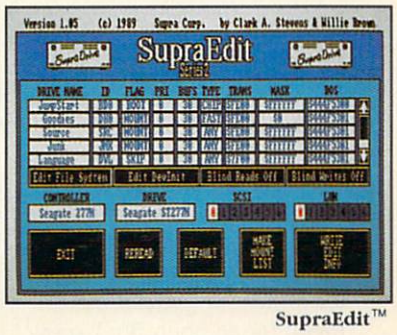
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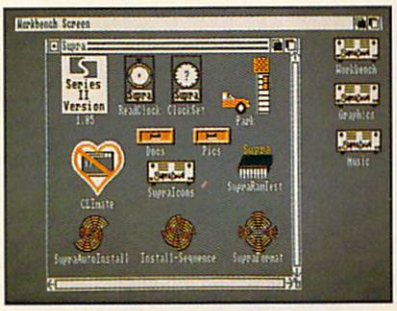
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lot of people might be willing to experiment with MIDI now that they know it doesn't have to cost a fortune. Good job!

These hardware projects are the way to keep my subscription going. If it were just one or two great articles every month, I might be happy just browsing at the library, or bumming them from a friend for an hour. But I know I have to keep projects for reference forever. I may build a project just the way you print it, but more likely I will tie it in with something else, expand on it, or just use a little piece of it in another project five years from now. Regardless of how I use it, this issue will be lurking in my basement for ages. (Would you be offended if it's sitting with Computers & Electronics' ZX 80 projects?)

I guess that about covers it. I'm sorry I was so long-winded, but this issue was too good to not tell you about it. Thanks for putting out the best Amiga mag there is. Good luck in maintaining the momentum!

Sincerely,
Steven Toal
Crofton, MD

Dear Amazing Computing:

Very humbly I would like to point out that the Amiga community is much larger than the reach of NTSC standard, and the number of Amigas are growing larger and faster everywhere, including PAL countries, and PAL are more than just the European countries.

So take heed, developers, manufacturers, producers, distributors, dealers, publishing companies, writers, free lancers, and all others and always take in consideration the potential and demand of the PAL market. We do need all kinds of PAL products, without any delays. Please pay attention to the following points:

1) There should always be information about PAL compatibility (yes/no) in EVERY Amiga-related advertisement, flier, field report, test, review, what's new column, expo, show & convention round ups, and package covers. If these products do not adhere to PAL now, what are the prospects of future PAL versions.

2) For every product there should be price information, availability and the phone numbers and addresses of the manufacturers. The phone numbers should be the companies actual phone number not just the TOLL FREE number, because VERY seldom are there toll free phone numbers in foreign countries.

3) As there are many so called "foreign keyboards" around, (as a matter of fact there's not such a thing as a "foreign keyboard" for the Amiga, but for individual "foreign softwares" there certainly are) and because there's a lot of buying potential in "foreign keyboard" countries. I think it's not too much to ask of the software companies that their program algorithms should be so sophisticated that the program would always check which keymap is in use, and then make the necessary adjustments. This problem can cause unpredictable and frustrating difficulties, and I know I'm not the only one familiar to these phenomenons.

4) All manuals should ALWAYS have an index included. The manuals shouldn't be written only by the program developers & experts, they do NOT necessarily know how to tell the average user how to start using a program, and to get along with it.

5) Where is the educational software? There's a considerable vacuum in this field of good, interesting, user friendly, and encouraging programs from children preschoolers to adults.

6) A cardboard leaflet with the key shortcut commands should always be included with the manual and/or a cardboard model, which can be fastened on the keyboard. The latter would especially speed things up for the beginner, to learn how to use the program, or when You have not fiddled with a program for awhile.

7) Globally it would help the consumer(s) a lot, if the information about the multitude of fonts would always include information {regarding} which keymaps are supported.

Sincerely yours,
Jan W. Ahlfors
FINLAND

P.S. Keep the Bandito ALIVE !!

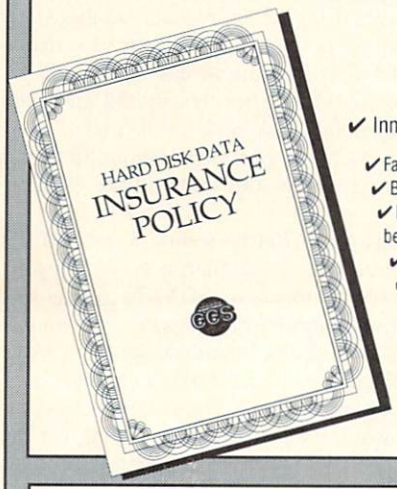
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Amiga Enthusiasts

One of the great things about working with the Amiga is the fascinating people we get to know. From our own readers and customers to the Amiga dealers, software developers, and hardware engineers, the Amiga has attracted some of the most sincere and dedicated people I have ever had the pleasure to meet. The Amiga continues to maintain a quality of devotion from its users and vendors that is rare in other computers. The reasons for this loyalty are diverse.

Some Amiga users point to the unique abilities of the Amiga. These hearty souls can recite a litany of reasons why the Amiga is superior to other computers. We listen in rapt agreement as they propound on the Amiga's ability to multitask, support advanced graphics, create magnificent videos, and professional-quality music. They know the Amiga's capabilities by its specifications. They understand the Amiga by what its features can produce.

Still, some Amiga enthusiasts point to the work they have accomplished. They will show you print outs of fascinating graphics (see Fractals Part II page 95) produced by mathematical equations. I have seen Amiga videophiles on a Boston television station at 3 AM explaining their latest video masterpiece. Some users, such as Jim Sachs, will create complete stories with music and graphics expertly coordinated by utilizing every available aspect of the Amiga. These users are extremely functional in their approach. They know what they want to accomplish and the Amiga is the best tool for the job.

Finally, there are those able fanatics who just like a good fight. The people who see the Amiga is a great computer and want the rest of the world to know it also. These Amiga users take a certain pride in championing the underdog, especially when they believe their computer is superior to the front runners.

We all fall into one or more of these categories. Some of us will move through different phases of this list depending on our present work or the current status of the Amiga. Unfortunately, those of us who champion the Amiga, must again defend our computer from the changes at Commodore.

A Change of Scene

Max Toy is no longer president of the United States division of Commodore Business Machines. He has joined the growing list of ex-presidents who have decided a change of company might help their "other interests." I begrudge Mr. Toy nothing. I sincerely hope he finds the place and the bearing he needs to accomplish his personal goals. Like all the Commodore employees I have met, he was personable, competent, and willing to do his best for the Amiga.

With all respect and fairness to the new president of Commodore U.S., Mr. Harry Copperman, I believe Mr. Toy's exit from the corporate offices of CBM exhibit more of the symptoms of an illness than the illness itself. Although everyone I have worked with at CBM has always done their best to do their job, there continues to be the awkward feeling that no one wants to commit themselves. Individuals are cordial and efficient, however it is extremely difficult to obtain a decision.

Such a simple idea: Market the Amiga.

I cannot blame the individuals since, in the words of Dorothy to Toto, "People come and go so quickly here." Imagine trying to work within a system where you temper your remarks, reactions, and decisions because you have seen so many top executives leave their posts.

In all fairness, I have gleaned from reading the Comdex article on page 18 and our ROOMERS column on page 105 that the main reason for dissatisfaction between Mr. Toy and Commodore was the lack of dramatic Amiga sales in the US.

Yes, Amiga sales have been steady, but they have also been slow to expand. This combination is not a comfortable situation when over 70% of the Amiga's sales are outside the US (some sources have placed this figure at over 80%). It is hard to defend a situation in which your counterparts in foreign markets are commanding a stronger market share than your organization with the same product.

Why? Why are sales or even the percentage of sales for this dramatically superior machine behind other less advanced and more expensive equipment? It is a most disturbing and extremely difficult question which almost every Amiga user I have ever asked has the same answer, "Marketing."

Amiga Marketing?

Such a simple idea: Market the Amiga. Demonstrate the abilities of the machine in advertising which focuses on the Amiga's strong points. In all fairness, this may seem difficult since the Amiga has so many strong points, but this should make the marketing task easier, not harder. However, if you are showing the Amiga, please allow it to demonstrate itself well.

Last year CBM presented a series (I think there were more than one) of Amiga advertisements on MTV. The spots were done entirely on Amigas and, from the look of them, by inexperienced users. There are several rumors circulating on how these commercials were created. The most interesting of these being that the account executives were brought together with the equipment for an intense week-end of discovery and creativity. Each group was instructed to make two or three commercials, the best of which would be aired.

These commercials did little to demonstrate the Amiga in a positive fashion. They were sporadically constructed and graphically poor. These commercials may have even been presented this way to mimic MTV's rock videos, however very little, if any, music was created or used from the Amiga. Almost as an afterthought, the viewer was quickly (and we do mean quickly) told of a free VCR available with an Amiga 500.

Although this advertising was directed at a particular market (the young viewers of MTV), and the commercials did at least attempt to demonstrate the Amiga by example, the results were, for most present Amiga users, less than exciting. However, Commodore will rightly show they sold more Amigas.

The question is why? Did Commodore sell more Amigas because of those commercials? Did they sell more Amigas because of the VCR incentives? Did they sell more because it was the holiday season? Did they sell more because of an influx of new Amiga titles? Or, did they sell more because they did advertise?

In truth, the answer is all of the above. Parents were driven into their local Amiga

dealerships by the interests of their children and some impact from the MTV commercials. But, once there, it was up to the Amiga dealer to sell the Amiga. Each salesperson informed the customer on what an Amiga would accomplish. Commodore made the dealers responsible to market the Amiga.

Making the dealers your marketing tool is not unknown. All computer companies with an established dealer network have done just that. They have provided the dealers with a set of tools to demonstrate their computers, instructed the dealers on the features of their machines and how to use them, and then provided advertising and other marketing to get the customers into the store. Commodore has leaned heavily on the dealers for support but they have delivered few warm bodies through the door.

Advertising is not everything.
A marketing manager understands that advertising is only one portion of the total marketing strategy. It is important and it cannot be overlooked. But there are other ways to make your product more recognizable to the public.

Apple Computer manages this task by placing their machines in television shows and movies, (Apple is still quite proud of their ***Star Trek IV*** scene with Scotty). Although Commodore has been able to place their equipment in TV shows (***ALF***, ***Miami Vice***, ***Amazing Stories***, ***Our House***, and others) and movies (***Three Men and a Baby***, ***The Disorderlies***, and even a recent Maxwell Smart TV movie) the viewing public did not have the product awareness to know this was an Amiga. Viewers had seen pictures of the Macintosh and they associated the shape with the machine. This same association escapes the general public when they see an Amiga. They just don't see enough of them.

AMIGA Awareness = You!
Computer purchasers and enthusiasts are different than any other consumer group. They are deeply involved in the success of their computer for two separate and important reasons.

First, computer owners want to know they have made the right buying decision. A computer is still an expensive commodity for most household budgets. Not only is the computer costly (let's be honest—we will all buy the biggest Amiga we can afford), but it requires a great deal of costly peripherals and software to work effectively. Add to this the amount of time required to become proficient with this hardware and software and we are talking about a great deal of resources.

Computer owners want to be assured they have made the best choice. If they are happy, they will tell their friends and associates. However, if they become displeased, they are a user scorned. This burned customer not only has nothing nice to say about you, but is extremely happy to suggest some other brand. This is negative marketing and, once started, is extremely difficult to reverse.

Second, computer owners want as many companies as possible providing goods and services for their computers. They want to find dealers close to where they live and work so they can easily buy

Send a Message to Commodore: Circle Reader Response Number 400

cables, software, accessories, etc. They want a variety of packages to choose from so they can buy what they need rather than molding what is available to their needs. The more active the market, the better opportunity these users have of attaining good performance from their equipment at a reasonable rate since competition should drive down the prices yet increase the quality.

These are the reasons Amiga users become involved. They start Amiga user groups, they attend Amiga conventions such as **Ami-Expo** (see us in Chicago Booth 27&28) and **World of Commodore**. And they buy machine-specific magazines such as ***Amazing Computing*** (thank you). Everyone who owns an Amiga, wants the Amiga to do well.

The best way to increase product awareness is to make the Amiga vendors aware of you. Amiga developers want to know if their product is of interest, and we are going to supply an even better method for you to do this and, at the same time, tell Commodore you want the Amiga marketed more!

Inform Commodore: Circle Number 400
The best way to make Commodore aware of the need to advertise the Amiga. Is to let them know how you feel. If you check our reader service card number 400 on the reader service card in this issue between pages 97 & 98, we will collect these responses and send them to Commodore.

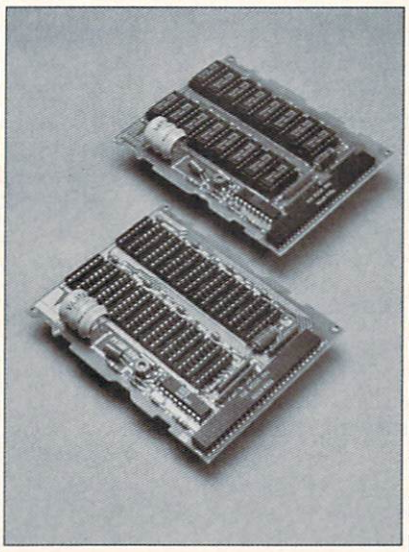
Perhaps, your responses will be the support the new leaders at Commodore can use to provide more funds for national advertising. Our letter will be directed to the Departments of Marketing, Sales, Public Relations, the Chairman of Commodore, and the presidents of each section of Commodore who are responsible for US sales of the Amiga. The letter will simply state that the enclosed individuals feel Commodore should do more to publicize and market the Commodore-Amiga. We will forward responses from our readers for as long as we receive them.

With your enclosed responses, we hope to sway the officers of the corporation into doing more to promote this "best kept secret of computing." By addressing this concern from present Amiga users to Mr. Copperman and others, we will not only express our concerns and support, but we may be delivering an added signal to all of Commodore, that users matter and want the Amiga users to succeed. This will only help everyone's view of the Amiga.

Inquiry Numbers, Please Circle!
Also, beginning this issue, AC will place inquiry numbers for companies mentioned in the articles and features. If you find a product or service of interest, mark the inquiry number on the reader service card and forward the card to PiM Publications, Inc. We will assemble the replies and mail your responses from both the articles and the advertisements to the individual companies. We cannot assure you of an answer by the individual companies, but they should respond to an honest request for information from an Amiga user and potential customer.

Your responses will help new and existing Amiga developers create products all Amiga users need and want. Your action may provide the inspiration developers need in order to complete or improve their Amiga products.

With your assistance, we can demonstrate to the Amiga community that there are a great many users who want to do more with their equipment. This is not a new concept and it does have some possible dangers.



MEMORY
for your A500:
512k+Clock
POPULATED:**$199.95!**
UNPOPULATED:**$69.95!**

Now Available DIRECTLY from MicroBotics: the M501 Memory Unit!

- **Exactly plug compatible with the equivalent, standard Commodore memory+clock unit!**
- **Available with or without RAM! (Install your own chips and save!)**

Your Amiga®500 computer *must* have a standard memory and clock expansion to bring your system up to a full megabyte of internal memory and to provide the battery backed real time clock. Now you can buy this standard expansion unit directly from MicroBotics; either complete with memory installed or in the cost effective, socketed unit, ready to accept your own ram chips.

HOW TO ORDER: Send certified check or money order in US funds to MicroBotics, Inc. Allow up to 30 days for shipping.
SHIPPING and HANDLING CHARGES: No charge for USA. Canada add $2 per board; Overseas add $7 per board. Price reflects a discount for cash payment– add 5% of order total for MasterCard/VISA orders. Please, no PO Box addresses. ***Dealer Inquiries Welcome.***

MicroBotics, Inc.
811 Alpha Dr, Suite 335, Richardson TX 75081
ORDER NOW! **(214)437-5330**
"Amiga" is a registered trademark of Commodore-Amiga

Circle 109 on Reader Service card.

Warning: This Procedure Could Be Hazardous To The Amiga Community

Byte magazine, as well as many lesser publications have used this system of placing inquiry or reader service card numbers for every company or product mentioned in their articles. On the surface, this is a good idea: read an article about a fascinating product and use the reader response card to contact the company. However, there maybe other, less altruistic reasons for this procedure.

Advertisers judge the strength of their advertising upon the reactions they receive for the dollars they spend. If advertisers spend a certain dollar amount between two or more magazines, they expect to generate interest from the publications comparable to the money spent. If one publication produces a larger response than another, future advertising and revenue will gravitate to that publication. A publication can demonstrate how many of its readers are interested in the company's product with an inquiry number next to a product mention. The dangers are great.

It is always extremely difficult for any publication to maintain an even course between advertising and editorial. In the case of advertisers, they feel a publication owes them a review or product mention if they advertise. They feel there should be a show of loyalty between the publication and the advertiser who is buying ad space.

Some advertisers will go beyond this approach and want to see any reviews on their products before they will advertise. I had one person tell me, after learning of a comparison review in an upcoming issue, "let me see the review. We don't want to advertise if the review is negative." Needless to say, the review ran, but the advertiser was not contacted for his advertising copy.

With this in mind, and understanding there are publications in every market who will run articles under the above conditions, what is to stop publications from directing editorial content to attract the highest ad dollars? When the decision on which article will be run in an issue is made, will it be in favor of what is best for the readers and the Amiga, or will the decision be which article will garner the largest number of replies for the highest paying advertiser—or potential advertiser?

Such a situation could arise where a publication glossed through their Amiga coverage and presented articles which, if marketed to the advertisers, would yield shiny full page advertisements. The added revenue could be funneled back into the publication to distribute an even glossier issue into broader distribution. The result is a soft, advertiser driven publication which gives little back to the Amiga user. The articles would be presented more for sensationalism than for utility.

AC's Advertiser Policy

We work extremely hard at Amazing Computing to keep editorial and advertising separate. We want to help the Amiga community create the best possible market of software and hardware. This is why we ask our readers to report any impropriety by advertisers. We send a copy of every complaint we receive to the advertiser with a letter requesting that they take some type of action to correct the problem and contact us with the results.

We will not begin this process of inquiry response until we have stated publicly the following: **Articles will *not* be selected or rejected based on their appeal to advertisers**.

In the past, I have stated publicly, before witnesses, to an advertiser who was pressuring me to change our policies, "We can produce a publication without advertisers. We cannot distribute a publication without readers."

This is not to say that we have not done our best to help advertisers get their message to the public. But we have always done so by working for the common interest. On many occasions, we have asked advertisers to scale their ads from full page black and white to quarter page advertisements in order to establish a cash flow from their new product and reserve their resources.

Our readers and the Amiga market will always come first. It is a simple concept of honesty and good sense. AC has worked hard for over three and a half years to help the Amiga grow and keep the Amiga user informed. This is too great a heritage to be lost for any reason.

Voice Your Opinion

Please take a moment to use our new procedure and note the products or services which interest you. If, you agree Commodore should more aggressively market the Amiga, please circle the special reader service card number 400. Together, we can help strengthen the Amiga's position in the computer industry. The result will benefit us all.

Sincerely,

Don Hicks
Managing Editor

New Products and Other Neat Stuff

by Elizabeth G. Fedorzyn

Ladies and gentlemen, R.J. Michal has left the building

Readers of *AV VIDEO* and *VIDEO MANAGER* magazines recently voted the Amiga 2000 as the Computer Graphics/AV "Product of the Year —Most Helpful in the Performance of Your Job".

Vice-president and group publisher for Knowledge Industries Publications Dan Baucher said, "By choosing the Amiga, our readers have indicated that personal computers have become an integral tool in presentation and production technologies."

Knowledge Industries Publications, Inc., who publish both magazines, presented the award to Commodore Business Machines, Inc. during the National Association of Broadcasters (NAB) trade show.

Woman of the world

All of the world's most valued treasures are being swiped left and right, and all evidence points to Carmen Sandiego and her V.I.L.E. (Villians' International Legion of Evil) gang. It is up to you to track down and capture these social deviants and restore (relative) order to society.

In Broderbund Software's mystery and geographical exploration adventure **Where in the World is Carmen Sandiego,** you are a detective with the Acme Detective Agency; and you must figure out which member of the V.I.L.E. pack is responsible for the latest theft.

Watch your step though, 'cause they're a motley crew. Some of the more slippery of the bunch include Merey LaRoc, a freelance aerobic dancer, Ihor Ihorovitch, pretender to the Czarist throne, and, of course, Carmen Sandiego herself—a double, triple, and quadruple agent for so many countries that even she's not sure which country she is working for.

You begin your investigation at the Agency, where you receive the details of your assignment: what treasure has been stolen, where it was stolen from, whether the thief is male or female, and your deadline for arresting the criminal.

From here you will head to the scene of the crime, then after the criminal. The thief can be in any one of 30 cities in the world. Clues to the criminal's identity are provided as you pursue him or her across the globe. Using the Police dossiers, the Acme crime computer, and the *World Almanac and Book of Facts*, you must decipher these clues to lead you to the criminal.

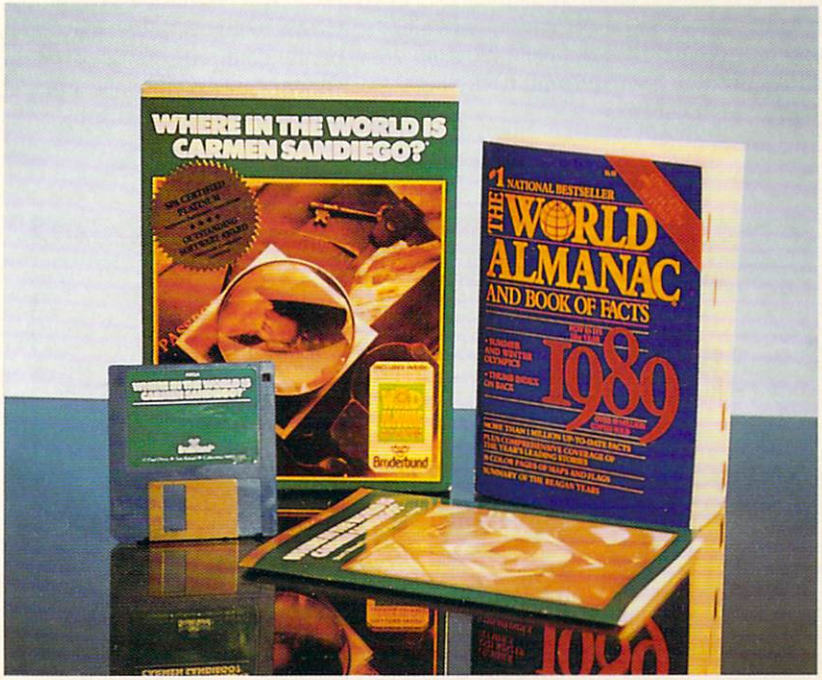
And when you finally do catch up with the guilty party, you had better have the proper arrest warrant or you won't be able to make the arrest. You will be pulled of the case, and will probably wind up doing security check at the local KMart. If you do make the arrest, you will be promoted and assigned to a more challenging case. And if you're a real sleuth, you may find yourself tracking the mistress of deception herself, and wondering, "Where in the world is Carmen Sandiego?"

$44.95
Broderbund Software, Inc.
17 Paul Drive
San Raphael, CA 94903-2101
(415) 492-3500
(Inquiry #218)

Volume, volume, volume

To bring the price of **WordPerfect 4.1 for the Amiga** more in line with other Amiga software products, WordPerfect Corporation announced that it will reduce the price of the word processor from $329.00 to $250.00. The price reduction will mean a lower price on

Below:
A look at the Carmen Sandiego package



dealers' shelves, thus making the program more accessible to Amiga users.

Commenting on the price reduction, Reed Hainsworth, WordPerfect Corporation's manager of Amiga products marketing, said, "We hope this will encourage Amiga users who wanted to buy WordPerfect but couldn't afford it, to go out and look at it again."

The price reduction comes after WordPerfect's announcement that they are halting development of WordPerfect 6.0 due to lack of sales.

WordPerfect 4.1 for the Amiga is a full-featured, high-end word processor that features on-screen snaking and parallel columns, a 115,000-word expandable speller, an on-line thesaurus, macros, math, merge, and support for over 250 printers. WordPerfect requires 512K memory and is available for the Amiga 500, 1000, 2000, and 2500.

WordPerfect Corporation
1555 N. Technology Way
Orem, UT 84057
(801) 225-5000
(Inquiry #219)

Lons Fonts

Micro Momentum, Inc. recently announced the availability of **Lons Fonts**, a collection of Interfont-compatible font sets. The font sets will work with any major 3D rendering packages.

Each set has both upper and lowercase letters, numbers, and punctuation characters defined. The font sets included are East, Euro, Readout, Stencil and four others. Save yourself the time and frustration involved with designing your own 3D objects.

$29.95
Micro Momentum, Inc. *100 Brown Avenue*
Johnston, Rhode Island 02919
(401) 949-5310
(Inquiry #220)

Dinosaurs Are Forever

No, it's not another all-star rock 'n roll jam session. **Dinosaurs Are Forever** is the latest addition in Polarware's Electric Crayon DELUXE series for children. This computer coloring book lets kids color 26 different dinosaurs and use their artwork to create and print custom calendars and banners. (Better have plenty of refrigerator magnets on hand.)

Using a simple point-and-click method, kids can use a cursor shaped like a crayon to select colors from a palette, then apply them to areas of the pictures. Each prehistoric scene has its own palette which can be altered without affecting the other palettes in other pictures. Colors can be changed to any of the 4096 colors the Amiga supports.

And should the pint-size Picassos become distraught over the shade of mauve they just made the dino's toes, they can simply click on the Oops! button to erase the most recent color applied. If they really foul up, they can hit the Erase button to clear the entire picture and start all over again.

The program even features sound effects, with each screen accompanied by the digitized sounds of the dinosaur shown. Each picture also comes with a brief description of its subject that can be displayed onscreen or printed out with the picture.

Dinos can be printed in color, or in black and white for hand coloring. They can be produced in regular, calendar, or banner format. In addition to the descriptions, messages can also be included with the final works of art.

Dinosaurs are Forever. You might have trouble telling the dinosaurs that, but Polarware will have the kids convinced.

$39.95
Polarware
1055 Paramount Parkway, Suite A
Batavia, Illinois 60510
(312) 232-1984
(Inquiry #221)

Amiga alignment

If you have ever been thrown into a panic-stricken state as a result of receiving error messages regarding your disk drive, you might want to consider having your system aligned with the **Ami..Alignment System** by Free Spirit Software.

The Ami..Alignment System lets you evaluate the mechanical condition of your internal and external 3.5" disk drives. The program considers the disk drive's alignment, speed, and read-write performance among other things.

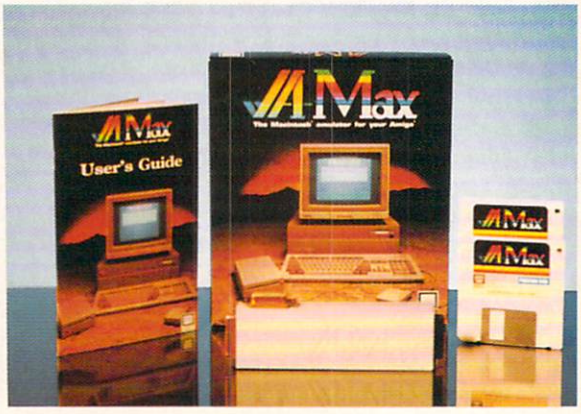
Functions to be evaluated are selected from a control-panel menu using a point-and-click method. From this menu, you can select options to automatically test drive alignment, test drive speed, or test drive read-write performance, or you can choose to manually test and adjust drive alignment.

The Ami..Alignment System



Left:
Some folks will eat just about anything

Right:
Is it a Mac, or is it an Amiga?



package includes a program disk, a calibration disk, and an operations manual which covers Commodore and third-party disk drives.

$49.95
Free Spirit Software
P.O. Box 128/58 Noble Street
Kutztown, PA 19530
(215) 683-5609
(Inquiry #222)

Masked Mac

Mac programs on an Amiga? It's either the work of a crazed madman or an ingenious plan to integrate the best of both computing worlds. One tends to think **A-Max** is the latter.

This Macintosh emulator from ReadySoft lets you run Macintosh programs on your Amiga, giving you both the advantages of the Amiga system and software, as well as access to most of the productivity applications that have made the Mac such a success.

A-Max is a combination of hardware and software that will run on any Amiga model with any amount of memory installed. The program requires either 64K or 128K ROM's; 128K is recommended since most Apple software requires 128K ROM's.

An Apple 800K external disk drive is also recommended. The external drive will allow the user to format and write Mac disks, as well as use Mac format disks without having to transfer them first to A-Max format. To use the 800K drive, you must supply the 128K ROM's.

The A-Max package includes the A-Max cartridge, an A-Max program disk, an A-Max utilities disk, and a manual.

$199.95
ReadySoft, Inc.
30 Wertheim Court, Unit 2
Richmond Hill, Ontario
Canada L4B 1B9
(416) 731-4175
(Inquiry #223)

Don't touch that dial

From the folks who brought you the NAG Schedule Assistant comes **FreD**, an index and automatic telephone dialer. Gramma Software's latest organizational tool not only lets you store names, telephone numbers, and a brief remark for up to one million of your friends and business acquaintances (memory permitting), but FreD will even dial the phone for you.

With FreD (short for Freedialer, the company's original name for the product), you can store information including Name, Telephone Number, and Comment, in three separate fields which can be up to 256-characters long. Your list can be viewed in three different ways, including a table view that lets you include up to 60 names on one page.

FreD will save you from having to rummage through hordes of information. A one-key search feature instantly brings you to the section of the alphabet you select. And using the wild-card search feature, you can quickly find a specific group of names—for instance, all those beginning with the letter J.

FreD works with the Amiga 500, 1000, or 2000. The program can work with or without a modem, and can interconnect to ARexx-compatible programs, including NAG PLUS.

$49.95
Gramma Software
17730 15th Avenue N.E., Suite 223
Seattle, Washington 98155
(206) 363-6417
(Inquiry #224)

More time to create

Emerald Intelligence has announced that the deadline for their Win A Moniterm MAGELLAN Application Contest had been extended to September 30, 1989. The extension is due to the delay in shipment of **MAGELLAN V1.1**.

This First Annual MAGELLAN Application Contest will showcase applications or knowledgebases produced with the MAGELLAN Expert System Tool. Awards will be presented in three categories, including Most Productive Application, Most Creative Application, and Most Bizarre Application. Prizes include Moniterm Monitors, MAGELLAN Developer version software, and MAGELLAN sweatshirts.

Now shipping, MAGELLAN V1.1 features additional knowledge engineering functions as well as improvements in the user interface. Also shipping, the MAGELLAN Interface Toolkit provides additional ease in interfacing MAGELLAN with spreadsheets in Lotus 1-2-3 format, SuperBase format databases, ARexx, and serial port and ASCII text interfaces.

You may purchase MAGELLAN V1.1 with the Interface Toolkit for $249.00, or without the Toolkit for $195.00. Registered MAGELLAN users may purchase the MAGELLAN Interface Toolkit as an upgrade for $75.00. Upgrades must be purchased directly from Emerald Intelligence.

Emerald Intelligence
3915-A1 Research Park Drive
Ann Arbor, Michigan 48108
(313) 663-8757
(Inquiry #225)

•AC•



A Blue Ribbon Apology

In last month's "New Products and Other Neat Stuff" Blue Ribbon Bakery's **Who! What! When! Where!** was erroneously called **Who! What! Where! When!** The program's price was listed as $69.95; the correct price is $99.95. Also, the correct telephone number for Blue Ribbon Bakery is (404) 377-1514.

We sincerely apologize for any confusion this may have caused.

COMDEX

Chicago, Spring '89

by Ed Bercovitz

At last year's Spring COMDEX in Atlanta, I was quite impressed with Commodore's promotional efforts. Across the street from the show at the Omni Hotel, Commodore unveiled the Amiga Gallery, a showcase for Amiga hardware and software developers. Adjacent to the Gallery were special sessions—complete with large screen video and music—for dealers, distributors and the press.

Senior Commodore executives offered an overview of the past, present, and future of the Amiga's marketing and technological development. Demonstrations of planned products such as the 68020 and AT Bridge cards, the Professional Video Adapter, and Amiga UNIX were given. On the COMDEX show floor, a large number of developers from the Amiga Gallery manned workstations in Commodore's booth, demonstrating the wide range and power of Amiga hardware and software.

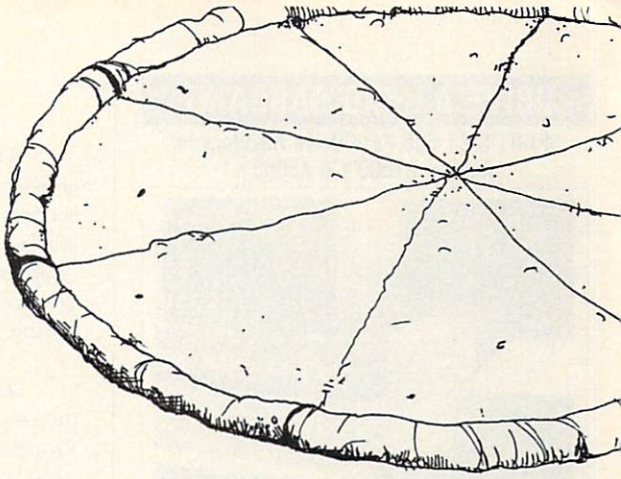
Consequently, when I arrived in Chicago in early April for the 1989 Spring COMDEX, I wondered how Commodore would top last year's efforts. After all, hadn't Commodore just had another year of ever-increasing quarterly profits? And even though it had not been publicly announced, didn't they pass a major milestone with the sale of the millionth Amiga? Finally, hadn't there been a phenomenal growth in the number of Amiga developers and third-party products?

Maybe with such high expectations I was destined to be disappointed, but in my opinion, Commodore's showing at this Spring COMDEX was a pale shadow of their excellent and imaginative efforts a year ago. There was no Amiga Gallery; there were no special presentations for the Amiga dealers, distributors or press; there were no technological previews. There were no third-party developers, other than 2 or 3 individuals who were there primarily as Commodore representatives, not as promoters of their own products.

Commodore's stated strategy this year was to keep it clean and simple and to target specific niche markets. Their booth design, with large areas of stark white panels superimposed on an open wire-frame superstructure, reflected this



A look at the action around the Commodore booth.



In a city known for great pizza Commodore delivered the Amiga with the works

approach. "Theme" workstations around the periphery of the booth highlighted the Amiga's niche market capabilities in desktop publishing, graphics design, video, music, and business applications.

Other than one 500, one 2500, and one Commodore PC compatible, all the machines on display were stock Amiga 2000's. The inner core of the booth consisted of an information center stocked with pamphlets on several dozen Amiga titles, an assortment of miscellaneous offices, meeting rooms, and storage areas.

Commodore's stated strategy this year was to keep it clean and simple and to target specific niche markets.

The only concession to the usual COMDEX shuffler glitz was a quasi-theatre along one wall consisting of 16 monitors set in a 4 x 4 matrix showing the "Only the Amiga Makes It Possible!" video. While this video might have been appreciated by hardcore Amiga aficionados, it was likely overlooked by the average COMDEX attendee overwhelmed by other equally or more impressive displays (especially when the other displays were produced by professional firms on equipment costing tens of thousands of dollars more than an Amiga). It was unfortunate that no one emphasized that the videos about the Amiga were produced *using* an Amiga.

When I said earlier that there were no technology previews, I wasn't really being accurate. Commodore showed one new piece of hardware and software, but the fanfare was almost nonexistent so it would have been easy to overlook. Tucked in the booth's Business section was an Amiga with a rather strange looking disk icon on its Workbench, an icon with the word "Novell" under it.

There were no signs or literature around the workstation but a few pointed questions revealed that this Amiga was in fact a workstation on a Novell network. A double click on the icon opened a Workbench window showing the files on the network server (in this case, a Commodore MS-DOS PC). With a quick flick of the mouse, I was able to move files back and forth from the server to the Amiga, or launch programs from software located on the server.

The Novell network interface card, which adheres to the Zorro II specifications, is being developed by Commodore. The porting of the Netware software is being done by Oxxi Inc., under contract with Commodore and licensed by Novell. Consideration is also being given to developing the server technology for the Amiga. Functions are provided for renaming AmigaDOS files so they may be read by Macs and MS-DOS machines if the file formats are compatible. The hardware and software is scheduled for release in the latter half of the year, with pricing comparable to Novell products for other personal computers.

This technology will be of little interest for most individual Amiga owners, but it is exciting news in the corporate world. Novell is easily the most widely used network, and the introduction of this hardware and software will be an important element in allowing Commodore and the Amiga to break into this important market. The 90's are being touted as the decade of connectivity and the Amiga, with its well established multitasking and multi-operating system capabilities, can now be accepted as a viable alternative to other system architectures in the business world.

On the show floor

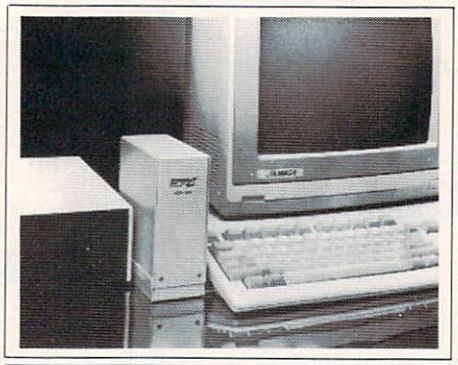
While COMDEX was, as usual, oriented largely towards the IBM market, you could, with a bit of effort, uncover a sprinkling of Amiga developers. This year's exhibitors included Abacus, Accolade, Anakin Research, ASDG, Brown-Wagh, Cinemaware, MicroWay, Taito, WordPerfect, and Xetec. Even though many of these firms produce products for other computers, it was somewhat surprising—and disconcerting—to see many of these developers largely neglecting the Amiga wares in their booths. Only ASDG, Anakin, Microway, and Xetec used Amigas to demonstrate their products. While the Amiga did not have a high profile in many of these booths, in most instances I could speak to someone knowledgeable. I also received some literature on current and planned products.

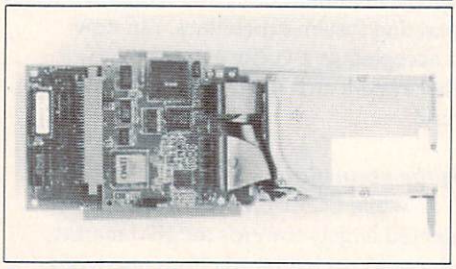
"By having a nearly totally CBM-manned booth, instead of zillions of third-party "guest" exhibitors, CBM was able to project a more cohesive image."

My exploration of the world of third-party developers unearthed a number of announcements and unveilings of new Amiga-specific and generic computer products of interest to Amiga owners including:

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Top: HDA-506 Hard Drive Adaptor interfaces IBM type hard drive to A500 or A1000 through expansion port. **Below:** HDA-506-2 mounted as an ST-506 hard card for internal installation in A2000. Same card can be plugged into any ZORRO slot to connect to an ST-506 hard drive in A2000s peripheral bays.

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Taito Software (a division of the coin-op arcade manufacturer) announced six new game titles including Bubble Bobble, Renegade, and Operation Wolf (shipping now), as well as Sky Shark, Qix and Rastan, scheduled for release during the next six months.

Zoom Telephonics announced the shipping of their EX Communications Processor. Priced at $595 with a internal 2400 baud modem ($395 without the modem), the EX at first appears to be a simple voice mail system, with its ability to store voice messages in the 128K of RAM on the motherboard (more memory is available via a daughterboard), hard disk or floppy use, and the ability to retrieve voice messages via touchtone passwords. In addition, incoming calls can be diverted to another extension, outgoing phone line, fax machine, modem, or printer. It can be used to turn on a computer or other electrical devices via an optional AC module.

"CBM can make third-party developers feel good if they are invited to participate at COMDEX. CBM should wine and dine them, just as Apple does."

With two serial ports, a parallel port, real-time clock, headset jacks, digital-analog converters and audio inputs and outputs, and socked EPROMS, the EX Processor seems more like a cross between a computer and a stereo system. The superset of Hayes commands and its programmability make it an ideal matchfor the Amiga's sound capabilities the EX for a custom application. It would be nice to see a smart Amiga software developer produce a program that would allow average users to utilize the EX's wide range of features. A bundle of this hardware and software could form a very affordable, but very powerful, personal communications system.

Avery Labels announced the release of 3.5 inch disk labels on individual sheets suitable for printing in a laser printer. There are six labels per page mounted in two rows of 3 across. With appropriate software such as a desktop publishing package, individuals, user groups, and small software developers should be able to quickly produce high-quality, mixed text and graphics labels on a Postscript or HP-compatible laser printer.

Xetec was showing their line of 20, 40, and 80 meg internal and external SCSI systems for the Amiga 500, 1000, and 2000. They also announced new internal and external systems using the Micropolis half-height 5.25 inch 158 meg drives, as well as very reasonably priced 60 meg streaming tape drives for all Amigas. At the next World of Commodore in California, they will unveil the FastRAM, an 8 meg memory board for use with the FastRAM. The product uses 1 meg SIMMS and has a socket for a math coprocessor with a projected list price of $119 for an unpopulated board.

Marconi was showing their new mouse-compatible track ball for the Amiga. With an unusually well done ergonomic design, this trackball could easily be used in lieu of a mouse for most applications. Given Marconi's track record in producing trackballs for military and industrial applications, the quality of the construction should be of a high standard.

Most people are familiar with mouse mats with fabric-covered work surfaces. More recently, Teflon-coated mouse mats have started coming into wider distribution. The advantage of Teflon is that it has a non-porous surface, and that is more resistant to dirt and spills, easier to clean, and low friction. This surface permits smoother mouse movements. Peak Products has taken the evolution of mouse mats one step further with the introduction of a Lexan mouse mat. Besides retaining all the benefits of Teflon, the Lexan surface is transparent and hinged to its rubber backing. The pad is slightly larger than average letter size paper, and you can insert software application templates, to-do lists, calendars, phonelists, etc. into the mouse mat and keep them handy for quick reference.

Third-party views

The personal computer industry can be viewed as fundamentally a series of symbiotic interrelationships. No one manufacturer is self-sufficient in producing all the components required by end

users. Usually, the computer manufacturers define the primary standards, and a network or subindustry of third-party developers emerges around the standard.

This phenomenon can be seen very clearly when it is almost obligatory for third-party developers to be at the booth of the manufacturer of the product they are developing. It is the very existence of a significant amount of third-party development that initially helps define a standard and then contributes to its expansion and growth. This simple fact of life is recognized by even big companies like IBM, which had 60 third-party OS/2 developers in its booth at COMDEX.

Given this industry reality, Commodore's decision to minimize the presence of third-party developers was a bold but risky decision. I asked some Amiga developers for their views on Commodore's COMDEX exhibit and the change in strategy from last year. I received some rather divergent replies:

"Well first of all, we had our own booth so that we could attract dealers and VAR's to our new products. Unfortunately, the Amiga market is so small that COMDEX becomes an ineffective means to reach Amiga dealers. We are already in touch with most of them." (A publisher who was promoting their IBM/Mac lines but excluded their Amiga products.)

"I think CBM is making a mistake by not having third-party participation at COMDEX. In my opinion, CBM has to attract dealers and VAR's. To do that, they had better be able to show a wide variety of applications on the Amiga. CBM does not have the resources (people nor experience) to present a true picture to dealers. They must rely on all of us."

"CBM had better work real hard on relationships with third-party developers. With the volume of new Amigas in the US so pitiful, developers are going to have to move on to different platforms, i.e., Macintosh, IBM, NeXT. If it doesn't improve quickly and significantly, then?"

"CBM can make third-party developers feel good if they are invited to participate at COMDEX. CBM should wine and dine them, just as Apple does. These developers need a lot of love right now."

WordPerfect: Why No 6.0

WordPerfect Corporation is generally recognized as the largest and best known software developer supporting the Amiga. At last year's COMDEX they were represented in both the Amiga Gallery and in Commodore's booth, and promoted their Amiga products in their own corporate booth as well. However, this year WordPerfect eliminated the Amiga and Atari sections, and the booth was almost totally devoted to their IBM and Mac products.

While the staff in the booth was friendly, their knowledge about Amiga WordPerfect, Library, or the projected release of Plan Perfect was virtually nil. They had no promotional literature on hand, and the best they could do was offer to take my name and send me some information. After returning from COMDEX, I contacted Lynn LeBaron, head of the WordPerfect development team to ask about their non-participation at the show and I received the following response:

"The WordPerfect Amiga group felt that the money that would be spent by going to COMDEX would be better used in other forms of advertising," LeBaron said. "We feel that COMDEX is a highly IBM-oriented show, and that consequently the number of potential users/dealers we would reach would not merit the cost."

She continued, "CBM did not have third-party developers in their booth, nor did they have the Amiga Gallery and dealer sessions. We saw that as a confirmation of our opinion (above), and this of course helped us make the decision to not go. Had CBM invited us to be in their booth, or had the dealer sessions, we would have sent at least one representative."

While this explanation seemed plausible and even a bit encouraging, within two weeks after COMDEX, Lynn LeBaron and Pete Petersen, Executive Vice-President of WordPerfect Corporation posted messages on all the major public networks announcing that all new development of Amiga products was being terminated and that most of the Amiga programming team was being transferred to other divisions.

The stated basis for this decision was financial. After very good initial sales of WordPerfect, revenues dropped off considerably, and the hoped-for revival from foreign sales and the release of Library had not materialized. Consequently, for most of the past year the Amiga division had been losing considerable amounts of money. WordPerfect believed the primary demand in the Amiga word processor market was for a program that would allow WYSIWYG display of onscreen graphics and fonts. Considering that WordPerfect first develops new versions and products on their most financially successful platforms (Mac and IBM), and considering that there are considerable changes in the code of WordPerfect 5.0 and 6.0 (the latter still under development), it would probably be a minimum of two years before an Amiga version could be released. With this timeframe, development costs, and ongoing maintenance expenses, WordPerfect felt they could not economically compete in the Amiga marketplace.

Needless to say, this announcement caused a major furor and over the next few weeks. Hundreds of messages were posted on all the major networks. Fortunately, the exchange of views had an impact, with a partial reversal of WordPerfect's earlier decision being announced. A core of Amiga programmers will be retained to maintain the current version of WordPerfect (i.e., to fix bugs) and to work on developing new enhancements and features to facilitate the ease of use of the program and to allow exchange of files with other versions of WordPerfect. They will continue to monitor the Amiga marketplace and they may reevaluate their decision not to do a WYSIWYG Amiga version.

WordPerfect's reputation as a company that cares about its customers was furthered enhanced by LeBaron and Petersen's efforts in reading all the questions, comments, criticisms, and suggestions that were directed at them and responding in an open and frank manner. If you do not use any of the major commercial information services, you may write to WordPerfect Corporation with your comments and suggestions.

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"By having a nearly totally CBM-manned booth, instead of zillions of third-party "guest" exhibitors, CBM was able to project a more cohesive image. The image, by the way, was UPSCALE, and that's nice. Notice very few A500's? Mostly A2500's. That's good news for CBM to project itself as a business computer maker."

Adding it all up

Usually at a show such as COMDEX, you can expect to see a fair number of members of Commodore's senior management around the booth—people such as Chairman of the Board Irving Gould and Gail Wellington. While they were on hand and fairly visible throughout the show, one individual was conspicuous by his low profile: Max Toy, President of Commodore's US operations. Mr. Toy spent approximately 24 hours in Chicago before heading back to Commodore headquarters in Westchester, PA. The reason for his limited appearance became evident the week after COMDEX, when a press release announced Mr. Toy's departure from Commodore to "pursue other interests".

Mr. Toy is the third Commodore senior executive to leave the company in the last few months (the others being Harald Speyer, as the head of Commodore's European operations and Rich MacIntyre, Vice-President of US operations). It may well be that this rapid turnover in Commodore's management is more an explanation of their poor performance at COMDEX rather than being symptomatic of a larger problem.

Hopefully with new leadership, a new focus and direction can be defined for both the Amiga and Commodore. This will hopefully be reflected in their presence at trade shows such as COMDEX, and in their day-to-day marketing efforts. Attendance at every COMDEX is no longer obligatory, as seen by the absence this year of such big names as Apple, Lotus, and Microsoft. If they can't put on a top-notch display, they would be well advised to save their time, effort, and money by not appearing, rather than risk making a poor impression through a half-hearted, second-rate presence at COMDEX.

AC•

Companies Mentioned

Abacus Software
5370 52nd Street
Grand Rapids, Mi 49508
(616) 696-0330
(Inquiry #180)

Accolade
20813 Steven's Creek Blvd.
Cupertino, CA 90514
(408) 446-5757
(Inquiry #181)

Anakin Research,Inc.
100 Westmore Drive Unit 11c
Rexdale, Ont, CANADA M9V 5C3
(416) 744-4246
(Inquiry#183)

ASDG, Inc.
925 Stewart Street
Madison, WI 53713
(608) 273-6585
(Inquiry # 184)

Avery Business Systems
777 E. Foothill Boulevard
Azusa, CA 91702
(818) 969-3311
(Inquiry # 186)

Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 413-9100
(Inquiry # 194)

Marconi Electronic Devices Inc.
Power Division
45 Davids Drive
Hauppauge, NY 11788
(516) 231-7710
(Inquiry #187)

OXXI, Inc.
3430 Falcon Ave.
Long Beach, CA 90807
(213) 427-1227
(Inquiry# 188)

Peak Products Inc.
12434 Cedar Road
Cleveland, OH 44106
(800) 782-8268
(216) 229-2578
(Inquiry #189)

Taito Software
267 West Esplanade
North Vancouver
B.C., Canada V7M 1A5
(604) 984-3344
(Inquiry #190)

WordPerfect Corporation
1555 N. Technology Way
Orem, UT 84057
(801) 225-5000
(Inquiry #191)

Xetec, Inc.
2804 Arnold Road
Salina, KS 67401
(913) 827-0685
(Inquiry #192)

Zoom Telephonics Inc.
207 South Street
Boston, MA 02111
(617) 423-1072
(Inquiry #193)

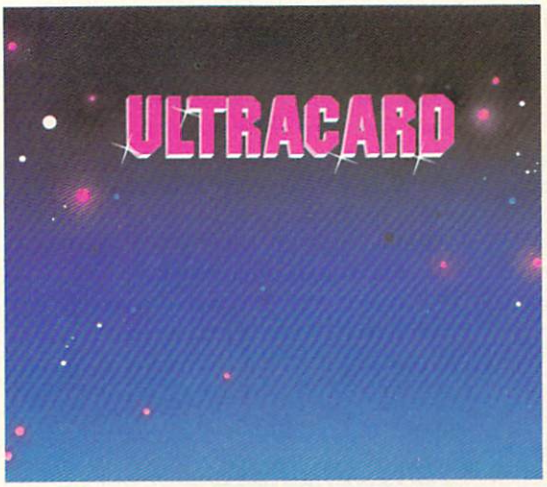
Amazing Exclusive:

Inside UltraCard

HyperText Comes to the Amiga

by Steve Gillmor

Since the first day I heard about it, I've longed for access to HyperCard. Sure, with the Amiga you get color and video and quad sound and multitasking, but you don't get HyperCard, the program many think is the greatest single conceptual advance in personal computing.



The Amiga has given computer access to a generation raised on television and now coming of age in the world of business and power. UltraCard gives Amiga owners the tools to fashion their computer in their own image.

The Freedom to Associate

HyperCard is an authoring and browsing software environment that lets users freely and interactively navigate through data organized into files called stacks. These stacks consist of graphics and text stored in what appear to the user as a series of index cards that you move through by clicking on arrow-shaped icons. You can enter data into text fields in response to prompts; you can manipulate that text or numerical data manipulated, route it to different cards; or print it out as a report.

The program is controlled by the underlying HyperTalk scripting language, which is used to write modular commands called handlers, that are activated by clicking on icon buttons, text fields, and even whole cards. The Macintosh's reputation as a user-friendly, graphically-oriented system was greatly enhanced by HyperCard, and Apple's strategy of bundling it with every machine has paid off handsomely, particularly in the academic environment where the Mac is so strong.

In the two years since HyperCard's release, at least ten books, hundreds of commercial stackware products, and a wealth of public domain data, scripts, and stacks have been released. Online services like Genie, Bix, and CompuServe have large libraries and active conferences solely devoted to HyperCard issues, and there are several Hyper-specific magazines, including the stack-based HyperNews.

Amiga Environments

Several programs on the Amiga offer some of the functionality of HyperCard. MicroFiche Filer Plus can store a series of IFF files as well as text and data fields that you can scroll around to select; and it can be coordinated through ARexx with spreadsheets, word processors and desktop organizer programs like Nag Plus 3.1 and Who! What! When! Where!.

The Thinker hypertext processor can issue DOS commands to run sound players and IFF picture viewers, but it is mainly a text processor that allows you to establish links and move to key words in different files. Emerald Intelligence's Magellan can also start up external programs under expert system control, but awaits the promised ARexx interface in Revision 1.1. Animation scripting programs like The Director, Lights! Camera! Action! and Page Flipper Plus FX offer sophisticated handling of pictures and sound, but they are really aimed at the desktop video niche market.

With the release of Readysoft's Amax Macintosh emulator, now we can run HyperCard using 128K ROMs in flickering black and white with no sound—providing a window into this brave new world of stackware.

Enter UltraCard

Clearly there is a demand for hypermedia products and a desire by Amiga owners to participate in this computing revolution. Mike Lehman of Intuitive Technologies, author of the spreadsheet program Plan/It, has designed UltraCard to combine the Amiga 's graphics power, multitasking, and interprocess data-sharing capabilities, with the "free association" magic of HyperCard. But since most Amiga users are not conversant in hyperware technology, let's begin with some basics.

First, a few notes on the differences in terminology between HyperCard and UltraCard. Both programs use the

"stack" metaphor, but UltraCard calls its cards "frames". HyperCard constructs its cards with buttons, text fields, and bitmapped graphics drawn with a built-in paint program. UltraCard employs a different strategy to reach the same goals. Taking advantage of recent advances in object-oriented programming, you can draw out and size objects that can be filled with text or graphics to create buttons, input data entry and multiline fields. Instead of an onboard paint program, UltraCard exploits the multitasking and sophisticated bitmap paint software of the Amiga. You can safely run UltraCard alongside your favorite paint program, create and then clip and load sections from your IFF images into objects that can be pasted anywhere within the UltraCard stack landscape.

Stacking up UltraCard

An UltraCard stack consists of a collection of frames, each of which can contain objects of varying sizes and properties. Each object exists on its own layer, much like an animator's transparent overlay. You can add objects one on top of the other, and rearrange them by using the Bring Object (Forward) and Send Back menu items. Each frame is overlaid in front of its associated Backdrop, which can also contain objects of all types. These objects are common to all frames that use this backdrop.

Looking into the screen, the order of depth of these stack elements is as follows: first, the objects on the current foreground frame, then, the foreground frame; then the objects on the Backdrop; and finally, the Backdrop. You can import a full-screen IFF image onto the Backdrop, and then layer graphic or text-filled objects over that.

The UltraCard Menu

The UltraCard menu structure is divided into two major areas: Browse and Modify. To create a frame, you first must select New Stack from the Project menu and give your stack a name. Next you are given a choice of screen resolution and number of available colors.

Back in Browse mode, let's create an object on a foreground frame. To do so, select Modify from the Edit menu or the F2 Function key, and you are in Modify mode. Now press the Escape button or select New from the Modify Edit menu. The cursor turns into crosshairs, which you can use to drag out a rectangle of the size you want by clicking down the left mouse button. Releasing the button creates the new object and displays it with the default attributes. These attributes can be modified and changed from the Properties and Contents menus once you click on the object to select it.

The Properties Menu

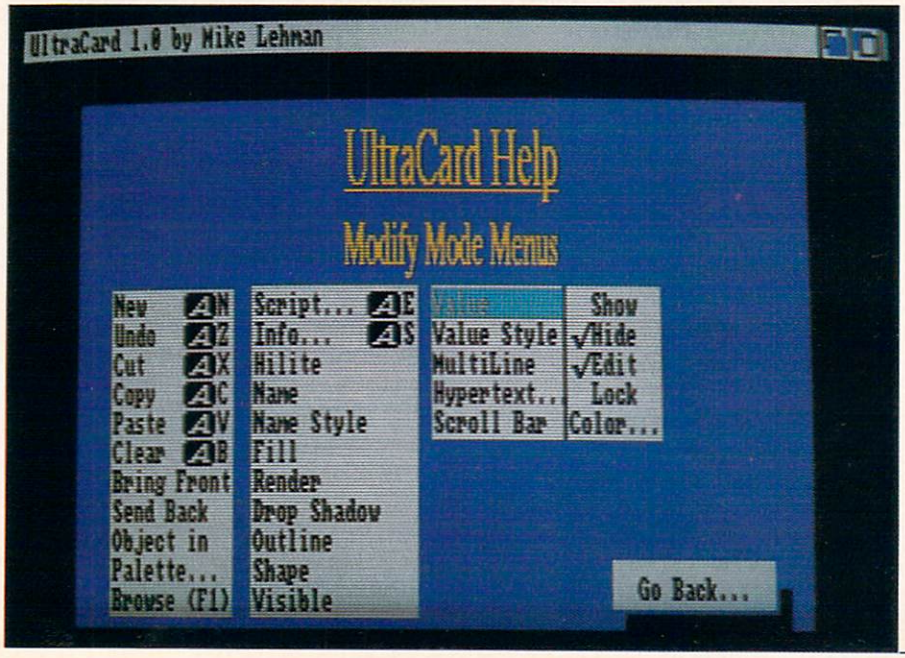
Properties include the Name, Name Style, Fill, Render, Drop Shadow, Outline, Shape, and Visible. **Name** refers to the object name, which can be altered from its default and then placed in the object or at various locations around it. You can adjust the color, font, and styling, and add a dropshadow with its own selectable color. **Fill** can be None, Color (selectable), or Graphic. Choosing graphic opens a requestor from which you pick an IFF image in the same resolution as the current stack. You can then extract a portion of that image and return automatically to the frame with the clipped bitmap in your object, which you can resize and move to any location.

Render lets you choose between Clear and Solid. If the object is a bitmap, Clear makes any color 0 in the image transparent. **Drop Shadow** refers to filled color objects, and can be one of three sizes or none. **Outline** can add up to three outlines in any color. **Shape** applies only to filled objects; choices are line, rectangle, or circle/ellipse. **Visible** is a choice of On or Off, useful when revealing a text field via script control.

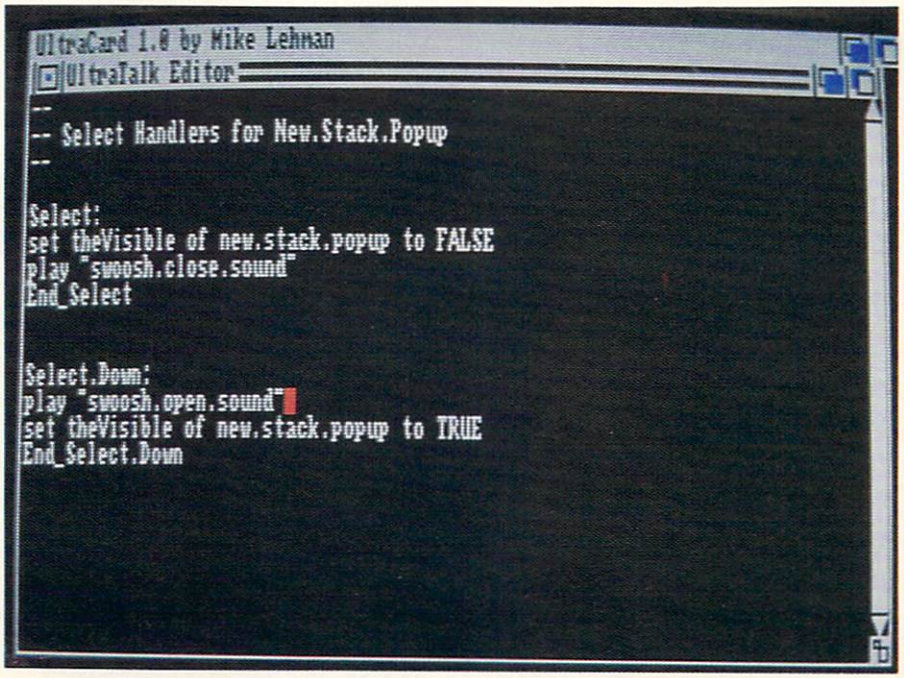
The Info menu item summarizes the current setting of the selected object's attributes, Hilite can be set to None, Inverted, or Outline to indicate object mouse selection, and Script takes you to the script editor, which you can also do by double-clicking on the object.

The Contents Menu

The Contents Menu lets you set properties for Value objects: single-line



A look at The UltraCard Help Screen





The UltraCard editor, where you type the scripting commands that you use to write UltraCard scripts.

data entry fields, and multiline fields. **Value** lets you Show the text, Edit or Lock the field, and choose the text color. **Value Style** offers the same range of items as Name Style. **Multiline** is enabled with Yes, which also activates Scrolling, with a choice of Vertical or Horizontal and choice of scrollbar color.

The Hypertext menu item allows you to associate actions with words in an multiline object's text string value. For example, in a multiline field containing the word Kennedy, clicking on the name could initiate an action popping up a text field with more data about JFK, or it could cause UltraCard to jump to a completely different frame that also mentions Kennedy. Thus, Hypertext lets you make words in a value act like button objects.

The Help Stack

This feature is widely used in the Help Stack, which is always available by pressing the Help key on the keyboard. This stack contains a map that branches to descriptions of Menus, Keyboard commands, Object manipulations, and UltraTalk, UltraCard's underlying programming language. You can also navigate via the Index button, and shop for ideas in the How To area.

By clicking on various buttons, and advancing from frame to frame via the arrow keys, you can explore the contents of the Help stack in any direction. Some buttons reveal text fields; others use the Amiga built-in speech synthesis and sound channels. As you get more proficient in creating your own stacks, you can add frames and link new Help stacks of your own to give you quick access to keyboard shortcuts and other system information at a mouseclick.

A look inside a stack

Now that you have had a chance to familiarize yourself with the basic building blocks from which UltraCard stacks are constructed, let's go beneath the surface of the Help stack and see what makes it tick. When you click on the Menu button on the opening Help stack map frame, the mouse click activates a script known as a handler. This handler issues a command to "jump" to another frame within the same stack, and it loads a new backdrop behind the new frame. This backdrop contains an IFF picture depicting the exposed menu items of the Browse mode.

You can't see them, but layered on top of the bitmap of each menu item is a transparent object, a "hot spot". When you click the mouse down on one of these hot spots, the script handler fires. The UltraTalk script sets the visible property of a normally invisible multiline text field to True, and plays a sound effect synchronized with the appearance of the Help text. Releasing the mouse button reverses the actions.

Writing a script

There are many ways to write UltraTalk scripts, but the niftiest is to go to the Modify mode, select your object, and choose Script from the Properties menu. Up pops the UltraTalk Editor, where you can type in your commands, or better yet, select AutoLink from the Edit menu. This temporarily returns you to Browse mode and superimposes a small window over each frame as you navigate. When you reach the frame you desire as a target for your starting object, click on the "Target" frame button to return to the script Editor and automatically enter the appropriate "jump" command. You can also use "Paste Statement" to insert UltraTalk commands from a glossary list without typing.

Many users will never have to write a line of UltraTalk code. Intuitive Technologies has released a browsing-only version of the program into the Amiga freely-redistributable libraries available from most dealers and user groups. Using this Browser, you can enter data and manipulate it within the stack, but you can't make permanent changes to the objects or scripts.

The Go Menu

The Go menu allows you to navigate in a number of configurable ways, including First, Next, Previous, and Last, as well as retrace your steps in reverse order or choose at random from the 25 most Recent frames. **Find** lets you locate a text string that you supply and then displays that frame. **Chat** gives you access from the keyboard to UltraTalk, and is useful for testing and debugging your scripts. Interesting items from the Project menu include commands to squeeze out unused space from your stacks when fragmentation occurs, and to protect your data and scripts from accidental modification. A variety of Printing controls is also included.

Proletarian Programming

UltraCard stacks are a new species of application. They give you the ability to create full-featured programs for your Amiga that previously were impossible without the services of a professional. Commercial stacks using HyperCard have begun to appear in large numbers, and there is every reason to assume that the same will occur in the Amiga environment. In fact, the narrow and unique graphics niche of the machine is a perfect match for UltraCard, since the program enables individuals to configure and personalize their systems as they pioneer new video and multitasking techniques.

UltraCard has been designed with the functionality of HyperCard as a platform from which to expand. The Amiga's ability to support several applications simultaneously is crucial to the structure of UltraCard. The program does not use HAM or overscan images in its first release, but can trigger animations and MIDI events from within scripts as easily as it jumps or executes any menu or data processing commands.

UltraCard's ability to automate and make transparent the intricate strategies for navigating among many applications and data formats gives the Amiga an aura of professionalism for business use.

You can export any frame or backdrop to an IFF file, or into and out of your favorite paint program via the Paint menu selection. ARexx is fully supported, which allows UltraCard to function as a front end for existing database and spreadsheet applications, oversee data sharing, and automate repetitive tasks. Users can compile libraries of ARexx routines, store them in the ControlRoom, and patch them as needed into their desktop environment.

The significance of this interconnectivity is more than just convenience. The wide variety and ingenuity of Amiga software has created unique problems along with opportunities. UltraCard's ability to automate and make transparent the intricate strategies for navigating among many applications and data formats gives the Amiga the aura of professionalism necessary for business use. For example, an UltraCard stack could automate the extraction of data from a database or an online information service, and import it into a spreadsheet for display and manipulation.

The advent of graphics programs with ARexx hooks means that images from video presentations can be modified for desktop publishing output under expert system control and vice versa. The ability to follow up a video with hard copy can often seal a deal. Creating a prototype of a production in real time with your client's participation and implicit approval saves thousands of dollars and hours.

UltraCard and software development

The demand for qualified systems programmers is greater than the supply. As a result, many innovative applications never get off the drawing board. Professional programmers like the ability to use HyperCard to convince software publishers of the validity of their application concepts without writing most of the code just to get the idea across.



The UltraCard Control Room, always opened up and passed through when you enter the program.

On the other end of the spectrum, the emergence of the home office as an economic force is creating a demand for specialized software that can't be easily targeted by large software publishers. In the Macintosh community, companies like Heizer Software are flourishing by acting as a clearing house for the best of HyperCard stackware. A major HyperCard commercial publisher has already indicated an interest in porting their stackware to UltraCard, based on early looks at the pre-release version used in this report.

An UltraCard stack consists of a collection of frames, each of which can contain objects of varying sizes and properties. Each object exists on its own layer, much like an animator's transparent overlay.

UltraCard comes with a special stack called the ControlRoom, which is always opened and passed through when you start the program. This stack contains libraries of complex built-in script functions to which you can refer from your own scripts. For example, functions to simplify communications with ARexx are located here. Also included are icons allowing you to visit the sample stacks shipped with UltraCard. These stacks include: Names and Addresses, Buttons Sampler, a simple Calendar, an Inventory that searches, sorts, and prints reports; an ARexx Sampler; and UltraBench, a collection of disk-organizer utilities. As you build stacks , you may want to attach icons to the ControlRoom to permit a stack or other application to be started with the click of a mouse. Most stacks also include a button to return you to the Control Room at any time.

A look ahead

Now that UltraCard is here, what can it do for us in the Amiga community? For starters, it's a much-needed front end to the emerging video disk and CD-ROM technologies. Using touchscreens, the Amiga can now be embedded in environments where keyboard and mouse are impractical, such as retail stores, malls, and industrial robotic control systems. With UltraCard, teachers can create everything from multiple-choice quizzes to detailed—but non-fatal anatomy lessons.

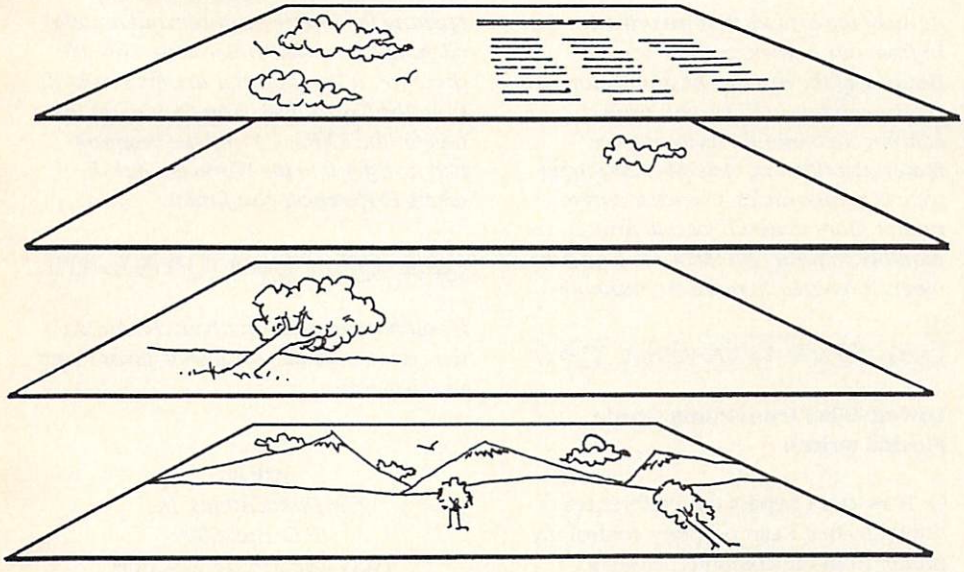
One of the most common uses of HyperCard has been the organized communication of context-sensitive information. You are already familiar with this concept via the built-in Help features of many programs, and UltraCard offers more sophisticated, and consequently more useful, on-line expert assistance. My partner Tina Chase and I are planning to use UltraCard to produce such stackware, concentrating on the graphics and desktop presentation areas where we do a lot of our business.

UltraCard is a much-needed front end to the emerging video disk and CD-ROM technologies. With UltraCard, teachers can create everything from multiple-choice quizzes to detailed anatomy lessons.

We have also initiated discussions with various hardware developers to begin construction of interactive user interfaces. The continuing advance of ARexx indicates that our strategy of integrating existing programs into one apparent superapplication can now accelerate under the UltraCard graphic shell. In effect, we are bundling the Amiga with UltraCard.

The appeal of hypertechnology is that it delivers on the promise of personal computing. The Amiga has given computer access to a generation raised on television and now coming of age in the world of business and power. UltraCard gives Amiga owners the tools to fashion their computer in their own image.

•AC•



Simulated UltraCard Stack, showing the various frames and their objects.

"You can add objects one on top of the other, and rearrange them by using the Bring Object (Forward) and Send Back menu items. Each frame is overlaid in front of its associated Backdrop, which can also contain objects of all types."

Intuitive Technologies,
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UltraCard, $49.95

Ask AC Q&A&Q&A&Q&A&Q&A&Q&A&Q&A&Q&A&Q&A&Q&AQ&A

Questions answered by AC's Technical Editor Mike Morrison

Mark Pottenger from Los Angeles, CA writes:

You have figures pertaining to the run time of the example Mandelbrot program on page 86 of AC V 4.3. I would like to pass on my figures. Compiling the program with AC/BASIC on my Amiga 1000, it ran for 2 hours, 17 minutes. Upon completion, the data on the screen vanished because the program returned to the Workbench.

Q: How can I prevent this from happening?

A: To prevent the program from going immediately back to Workbench upon completion, add the following code just before the END statement.

```
m=MOUSE(0)
WHILE MOUSE(0)=0
WEND
```

This will cause the program to pause until there is a mouse click. Once the mouse is clicked, the program will end. These lines of code are not needed in AmigaBASIC because the output window does not vanish when the program ends.

Q&A Q&A Q&A Q&A Q&A

Michael Ziolkowski from Reading, PA writes:

Q: How does hold-and-modify (HAM) mode work?

A: HAM mode isn't easy to understand or explain. In non-HAM mode, the bits from each bitplane are used to create a number that represents the color register that the color output circuit will use to color the pixel on the screen.

In HAM mode the color in the color output circuitry is held, and the color is modified, and then the modified pixel is written to the screen. The pixel is modified according to the way the bits for that pixel are set in the 5th and 6th bitplanes. Depending on this combination, the red, green, or blue components from the pixel to the left are used as the color components of this pixel. The best way to understand HAM mode is to find a piece of sample code that uses HAM (a program named colorful by Robert Pariseau on Fred Fish disk #1) and observe what the code does. In colorful.c there is a nice explanation of HAM mode if this one doesn't fully help you.

Q: How do the new graphics chips work and when will they be available?

A: There are several different rumors concerning new chip sets. The 1 meg Agnus chip is currently being shipped in all 2000 and 2500 systems. The 1 meg Agnus chip (not to be confused with Fat Agnus, according to a CBM employee) recognizes 1 meg of chip RAM, but doesn't allow any new graphics modes. The 1 meg Agnus will not work in A1000s and will will require you to bring your Amiga to a Service Dealer if you want to upgrade. See this months Bug Bytes for more info.

Q&A Q&A Q&A Q&A Q&A

Achim Wurm from Wiesbaden, West Germany writes:

Q: When will AC start a column on Assembler, similar to the "C Notes from the C Group" column?

A: All of the articles that we print are sent in from our readers just like you. Because of the number of submissions we receive written in C, we can print a column each month. As we receive material written in Assembly language we will print articles. Once we start to receive more material we will print a monthly column. We'd love to here from others interested in more on Assembly.

Q&A Q&A Q&A Q&A Q&A

Lowell Zabel from Punta Gorda, Florida writes:

Q: How can I bypass the Preferences setting so that I can properly control my printer from the computer, either in AmigaBASIC or from a word processor?

A: When printing from within AmigaBASIC or a program, send the output to the PAR: device. The PAR: device bypasses the Preferences setting and outputs directly to the printer on the parallel port. When you use the PRT: device, the information sent to it is interpreted by the printer driver that is set in Preferences and then sent to the printer on the parallel port.

Q&A Q&A Q&A Q&A Q&A

Warren Reese from Smyrna, Tenesee writes:

I just purchased a new Panasonic KXP1124 printer for use with my A1000. I was using an Okimate 20. I have tried several different printer drivers from the v1.3 Extras disk and I always get a requester telling me I have printer problems.

Q: Is the printer cable for the Okimate 20 compatible with the Panasonic KXP1124 or am I using the wrong printer driver?

A: The printer cable that works with the Okidata 20 does not work with the Panasonic KXP1124. You need to get an Amiga 1000 to Centronics cable. The EpsonQ printer driver works for the Panasonic KXP1124. It is on the v1.3 Extras disk. You can transfer the printer driver over to the Workbench disk by opening the Utilities drawer and double-clicking the InstallPrinter icon. This will show you a list of printer drivers available from the Extras disk. You then select the one for the KXP1124 and the program will transfer it to the Workbench disk where Preferences can find it.

Q&A Q&A Q&A Q&A Q&A

If you have a question about the Amiga that you would like answered, please send us a letter at:

Ask AC
PiM Publications, Inc.
P.O. Box 869
Fall River, MA 02722-0869

Thanks - MM Tech Ed •AC•

The Video Desk

A Look Inside the World of Amiga Video

by Larry White

With a new generation of video software and accessories on the horizon, here is a look at where we have been and where we are going.

It's hard to believe, but it is only a little more than 2 years since I first powered up my brand new Amiga 500 and found myself overwhelmed and excited by Deluxe Video (Electronic Arts). The demos showed the potential of the Amiga, playing animation sequences with synchronized sound effects and complete background music. Although even at this time, there were a few more sophisticated animation programs, Deluxe Video had a user interface that was simple to understand and easy to use. Decisions were easy and the choices were limited.

Since Deluxe Video was part of the same Deluxe series as DeluxePaint II and Deluxe Music Construction Set, specific instructions guided me through the creation of artwork, with details regarding which resolutions and palettes should be used, as well as the preparation of background music. The thick manual's hardware and application sections still serve as an excellent reference for anyone who wants to set up a computer-video production studio.

Within a few hours I had produced my first computer-generated video and transferred it to my VCR, albeit in glorious black and white (I was still waiting for the first A500-compatible genlocks to be released).

Although it offered synchronized sound and a host of video production tools, Deluxe Video was limited to 8 color, lo-res (320 x 200) images. I could find many worthwhile applications, but I felt that I needed more resolution, colors, and overscan.

Basically script-driven, the videos have a somewhat simplistic "sprites and bobs" appearance. Objects glide from place to place much as a sprite moves across the screen. A limited amount of page flipping or cell animation can take place within an object, animating it as it moves.

Next, I experimented with Aegis Animator, a metamorphic animation program in which you show where an object is placed and what it looks like at two or more times. The computer calculates and then draws each frame in between. This would not be good for all applications either, as I was still limited to lo-res images, and I had to forego sound and overscan. But now I could use up to 32 colors.

> *"We now have an arsenal of Amiga-based video and animation tools. In a way, things were easier when we had less to choose from."*

Learning to use Animator was a bit trickier than learning Deluxe Video—a trend that unfortunately was to continue. Although packaged with its own paint program (Images), I was pleased that I could still use my other paint program to create drawings for backgrounds as they both used the same IFF format. However, animations created by Deluxe Video could not be played by Animator, and Animator animations could not be played by Deluxe Video.

I also tried page-flipping animation, in which you draw each frame and then play them back rapidly enough to create a moving effect. This may seem to be an extremely time-consuming method, but remember that the changes from frame to frame are small, and that you can quickly copy and modify a drawing with almost any paint program.

Unfortunately, even at a frame playback rate of only 15 frames per second (about the minimum for smooth playback), you would need to draw and store 225 individual frames for a 15-second sequence, which is still a lot of time and diskettes. (Even with a compression technique such as Anim for playback, you will need to store the frames as they are created.)

Mindware's Pageflipper let me work with lo-res or hi-res in any number of colors including HAM. Several overscan formats are supported. As long as I kept within a format, I could work with any resolution my paint program could handle. I could even work with images captured with my Digiview.

Next came the Director from the Right Answers group, a display and animation language that literally put it all together. In addition to creating animations within this program, I could now sequence animations from various programs to be played sequentially. Sound effects were back.

Videoscape 3D (Aegis) introduced me to 3D animation where each side of the object is defined and the computer can generate a view from any angle. Again, the learning process was



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somewhat long and tedious.

Shortly after this, I was intrigued by a small ad promising Disney-like animation. This introduced me to Martin Hash's Animator: Apprentice, which showed remarkable capability but was (especially in early releases) incredibly difficult to learn. Dangling in front of me was the possibility of wrapping a digitized image onto a 3D animated character and placing it in an animated sequence! Although I could create art with my paint program, again, the anim files were incompatible with other animations I had created. There was no sound, and backgrounds were plain, allowing for genlock to live video.

While all these programs have worthwhile applications, and some have seen several minor revisions along the way, the basic program design may be as old as the Amiga itself, and many new starts have now blossomed into actual products.

There are even more players than ever before in what I call the "second generation" of animation programs. User interfaces are getting easier to operate, often allowing an instant playback to check your progress. More colors, including halfbrite (64 colors), are supported by many of the programs. And synchronized sound is now possible with more packages than ever before.

Each has its own special flavor. New titles include Fantavision (Broderbund), Lights! Camera! Action! and AniMagic (Aegis), Zoetrope (Antic), and Moviesetter (Gold Disk). VideoScape 3D has demonstrated many improvements in version 2.0, and Modeler 3D (Aegis) has been introduced as a new, easier to use front end. Pageflipper Plus FX (Mindware) goes way beyond the capabilities of the original Pageflipper.

Martin Hash has built an entire series with an improved Animator: Apprentice as the hub. Animator: Flipper, Effects, Stand, and Multiplane add many new features to your existing animations and adds some compatibility with other programs.

A new twist was added as packages that were primarily paint programs, now have built-in animation capabilities: DeluxePaint III (Electronic Arts) and Photon Paint 2.0 (Microillusions) both have extensive animation functions.

Although several animation packages have some drawing or paint functions built-in, I have always found them somewhat limited in these areas. Often, they are better for touch-up work than for creating original artwork. Now I can draw artwork and animate it at the same time, using all the features of two of the most sophisticated Amiga paint packages available!

Then there are the rumors and promises of things to come. In the near future we can expect a revamped Deluxe Video (II?), Digipaint 3 (NewTek) and not one, but at least two completely new animation packages from major Amiga software developers. A new, more sophisticated, version of Apprentice (Journeyman) plus rotoscoping, sound synchronization, and titling programs are on the way from Hash.

Not only has software improved, but during the last two years, I witnessed a proliferation of video and animation tools in hardware. Commodore's original 1300 Genlock for the Amiga 1000 was soon in competition with 3 all model genlocks: Mimetics' Amigen, Progressive Peripheral's ProGen and Digital Creations' Supergen.

Now we have several other all model genlocks, including Gen/One (Communication Specialties) and Scanlock (VidTech). We even have several sophisticated genlocks for the Amiga 2000 including the Magni 4004 Genlock Encoder (Magni) and a new SuperGen 2000s (Digital Creations).

We have new ways to put images into the Amiga. Frame capturing (Mimetics, Sunrize, Progressive Peripherals, Impulse) devices can grab live video signals and digitize them into various Amiga IFF formats.

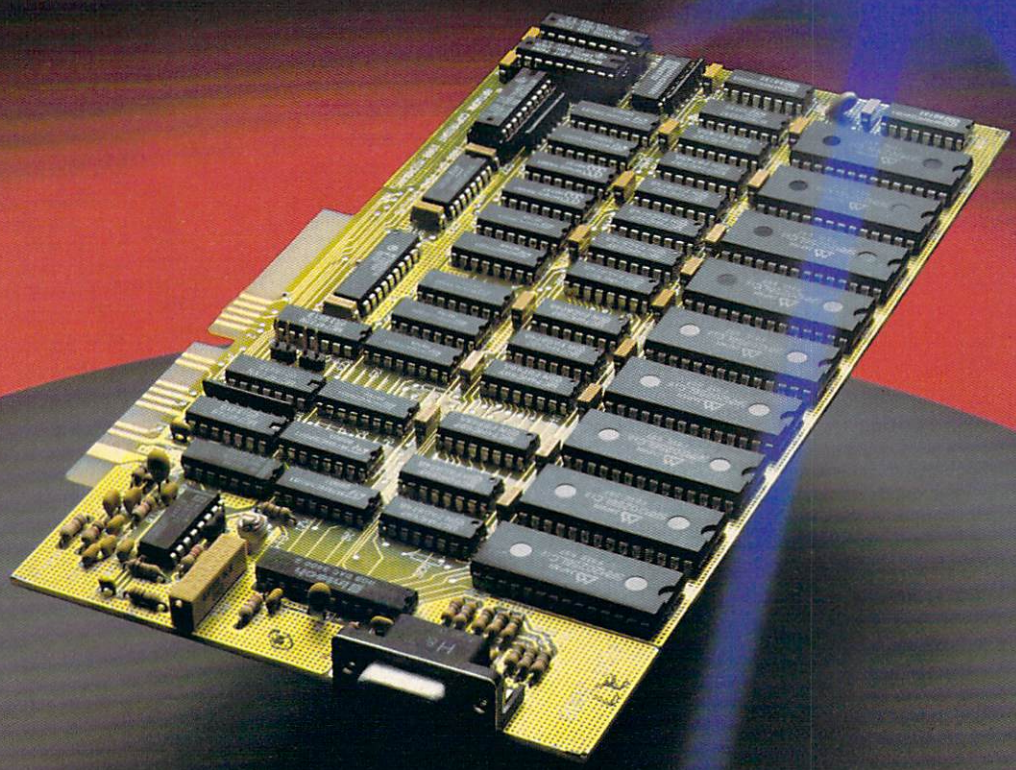
The Amiga can even be used to control the VCR's in an editing studio (Microillusions, Interactive Microsystems), and single frame controllers, such as Exorciser (Maurice St. Sauveur) let you write high-quality frames to studio model VCR's.

We now have an arsenal of Amiga-based video and animation tools capable of providing a wide variety of effects with various trade-offs of speed and quality. In a way, things were easier when we had less to choose from. A frequent complaint of Amiga animators is the number of false starts often arising when a specific image or one part of an animation turns out to be incompatible with a package necessary to produce a desired effect.

During the next few months, Steve Gillmor and I will help you cut through all this confusion, providing a means to select which software and hardware you will need for every application you have. Stay tuned.

•AC•

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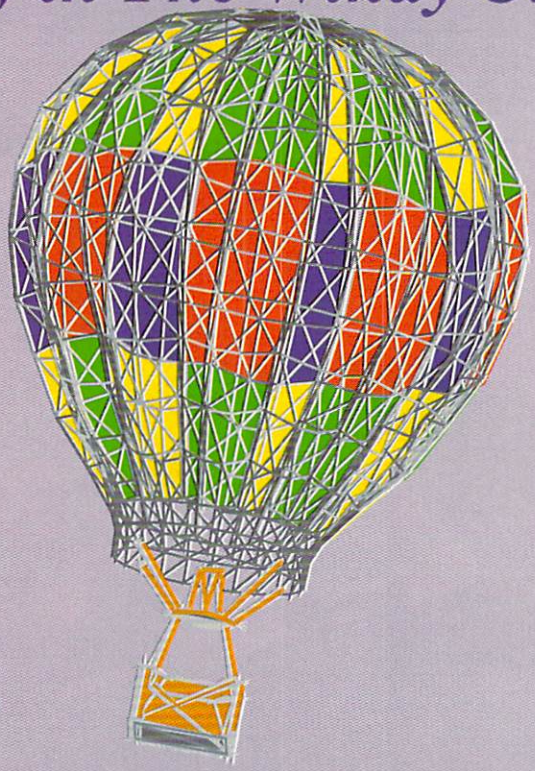
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Wayne Gretzky Hockey

review by Bob Borgen

As computer sports fans know, there are two kinds of sports software—games and simulations. Games are fun and allow players to be part of teams—but they are imaginary teams, made up of make-believe players.

Simulations are different, however. With good simulations, you can coach or perform as an actual athlete (based on realistic statistics, characteristics and limitations). For several years there have been strong simulations available for most major sports. Now, at last, there's one for hockey.

Wayne Gretzky Hockey can be played as a game—a very good game. And for those who are serious hockey fans, "Gretzky Hockey" ranks among the very best simulations of any kind on the market.

Hockey is a special sport, and has its own grace (especially in recent years as fighting has become more and more infrequent). Because it's played on ice, the game has a flow and feeling of improvisation that makes no two situations alike. "Gretzky Hockey" has captured the combination of fluid motion, teamwork, and improvisation that makes hockey a unique sport.

The Basics

Imagine sitting right in the score-board at center ice, looking straight down onto the ice surface—that's the view in "Wayne Gretzky Hockey". The direct overhead view may lack the emotion of on-the-ice action (especially after the game's great opening titles). But after you've played about ten minutes, you'll realize that the overhead view is the best way to follow all the action, and the best way to get involved in the strategy of the game.

At the game's most basic level, you can choose and control any player on the ice. Using a joystick (or mouse) you can move your player all over the ice (but try not to crash into the boards!), take shots, make passes—even demand passes from teammates or bodycheck opponents.

Whether you play an opponent or the computer, your decisions are important to the game. Even though you control just one of the 12 players on the ice, if your player wanders out of position, the computer (or a smart human opponent) will take advantage of your mistake.

For example, if you control a defenseman and try to rush the puck all the way up ice like Paul Coffey or Bobby Orr, you had better be good. If you lose the puck, your opponent will likely head back up ice in the opposite direction on a two-on-one break. Similarly, if you control one of the forwards and have him float at center ice (waiting for a pass and possible breakaway), the opponents will dominate play in your defensive zone. You really must play your position well, and be a complete team player, helping at both ends of the ice.

Like real hockey players, these computerized players also get tired. You can see their energy levels drop as time goes on. Line changes are a must in order to keep fresh players on the ice.

Gretzky Hockey really captures the feeling of skating on a rink as part of a team. And at its most basic level, it's a great way to play hockey on a computer.

True to Life

"Gretzky Hockey" has all of what you'd expect from a sophisticated computer simulation: penalties, offside and icing calls, delayed penalties, powerplay and shorthanded situations, multiple skill levels, player fatigue factors, and—because it's true-to-life—record keeping statistical abilities. In fact, the true-to-life statistical capabilities are what separates "Gretzky" from all other hockey games available.

With "Gretzky Hockey" you can select any one of four classic NHL teams (the '71 Blackhawks, '70 Bruins, '73 Canadians, or '69 Blues). Each team has all the players from that year's roster, rated according to his statistics and

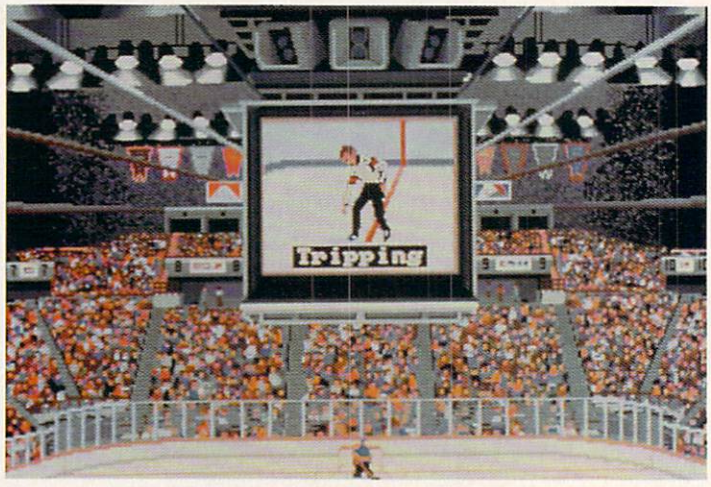


Figure One: *A screen from Wayne Gretzky Hockey: You can't get away with tripping in this one*

abilities. Players are rated in eleven different categories: aggression, power, injury, skating, puck control, shooting, quickness, fatigue, penalty, passing, and checking, with a variance of 1-9 for each category.

Therefore, if you choose the '70 Bruins and select Bobby Orr as your player, you can probably rush the puck up ice. But when Orr and his teammates get tired and are replaced by the Bruins' second line, you may be controlling defenseman Dallas Smith, who averaged just five goals a year. If so, you have to lay back and play a steady defensive game, because if you try to rush the puck with Dallas Smith, you'll find yourself behind the play, trying to catch up as everyone heads down the ice!

Variables

With Gretzky Hockey, you can play against the computer or a human opponent. You can just play, and let the computer be your coach making all the decisions, but you'll choose which player to control each shift. Or, you can play and coach (change lines to keep players fresh, decide on how aggressive to be on penalty killing, and choose who to use on the powerplays, etc). If Scotty Bowman has always been your idol, you can just coach, which will still keep you quite busy. In the "coach only" mode, you'll select line combinations, change lines when you think it's time, and decide on which strategies to pursue. But like a real coach, you'll be helpless once the puck is dropped. You can only sit back and hope your players follow your instructions.

The game comes with the four classic NHL teams mentioned earlier. But you can also send away for a disk with all 21 teams from the 1987-88 NHL season (complete with accurate ratings for each player). And there's even talk of a "Dream Team Disk" featuring some of hockey's greatest teams from over the last 70 years.

Further Options

If those choices aren't enough, you can make up your own teams, complete with names and player ratings. Or include yourself among the players on any existing team — this could be your chance to play on a line with Bobby Hull and Stan Mikita — or Wayne Gretzky and Jari Kurri!

I intend to sit down with a friend, choose an allowable point total (such as 1,500 per team), and then devise my own team by spreading the points among the players. That way, if I give myself a Wayne Gretzky-type, I may also have some less skilled players to make up for it. I like the idea of building my own teams, and with "Gretzky Hockey", I can do it.

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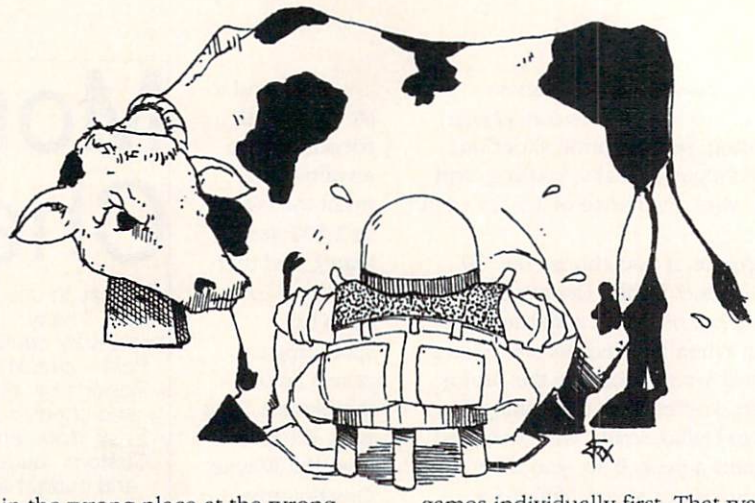
After playing "Gretzky Hockey" for a while, something about the game's "artificial intelligence" began to stand out: In real hockey, goals usually occur as the result of mistakes. Good teams wait for opponents to make mistakes, and then capitalize on them. In "Gretzky Hockey" the aritificial intelligence is very high. And though the computerized players are based on real-life counterparts, the computerized versions make very few mistakes.

It's like watching, coaching, or playing on a team where players have different skill levels, but each plays to the best of his ability. In other words, there are no "bonehead" plays by any of the computer-controlled players. Any coach or hockey player would be proud to be on any of these teams.

•AC•

Bethesda Softworks
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Western Games



by Steven Kemp

Western Games is an entirely new and original game for the Amiga. Western Games is composed of six contests that might be associated with the old west. The contests include Armwrestling, Beershooting, Quid-Spitting, Cow Milking, Dancing and an Eating competition. Joysticks are used to control the players,while keyboard control is available should you desire it. I mentioned "players" because it does support two players, though if you cannot find a "live" opponent , the computer can play one position.

Western Games comes on two diskettes but uses only one drive. This is a slight annoyance, but fortunately, disk swapping does not occur very often. The documentation is rather sparse, indeed. It is provided inside the cover of the packaging and reading through it takes only a couple of minutes. However, I cannot believe that anyone could successfully play this game by reading through the documentation just once. Believe me, you will spend a lot of time studying the diagrams provided. Although the instructions are "accurate", I found that a few more sentences in a few areas would have prevented some confusion. Don't worry, I don't mean to make a mountain out of a mole hill. With a little practice and experimentation you will fill in the blanks just as I did.

Armwrestling is the first contest and is pretty straight forward. The instructions for this contest left out one key word. That word is "everytime". It says to pull the joystick back when the "strength" arm is in a "strong phase". It should instruct to pull the joystick back EVERYTIME the arm is in a strong phase.

Beershooting involves being the fastest and most accurate gunslinger. The targets are beer and whiskey glasses held out by two unfortunate cowpokes who were in the wrong place at the wrong time. Maintaining calm nerves and a fast hand is an important part of this contest.

Quid-Spitting is a fancy way of saying tobacco spitting. Don't worry, this contest is not as unsanitary to play as the name might imply. You have to bite off a chunk of tobacco, chew it up, and spit it into a spittoon sitting at the feet of the other opponent. Sounds simple, but it takes a little practice.

Cow Milking was the most difficult contest for me. In fact, I never successfully completed this one (and neither did the computer). Getting milk from a cow involves precisely timing the joystick movements. The pace is fairly quick and mistakes are easy to make. I could successfully keep the opponent from filling his churn but could not fill my own. Maybe you will have better luck.

Dancing is another contest that involves accuracy and timing but is much more entertaining. After watching a dancing girl perform a few steps with music provided by the piano player, you have to repeat the same steps. Each time both players are successful, the dancing girl comes out again and does a more difficult step. If someone falters, they can get another chance if they buy the piano player another beer. When someone runs out of beer money , the contest is over.

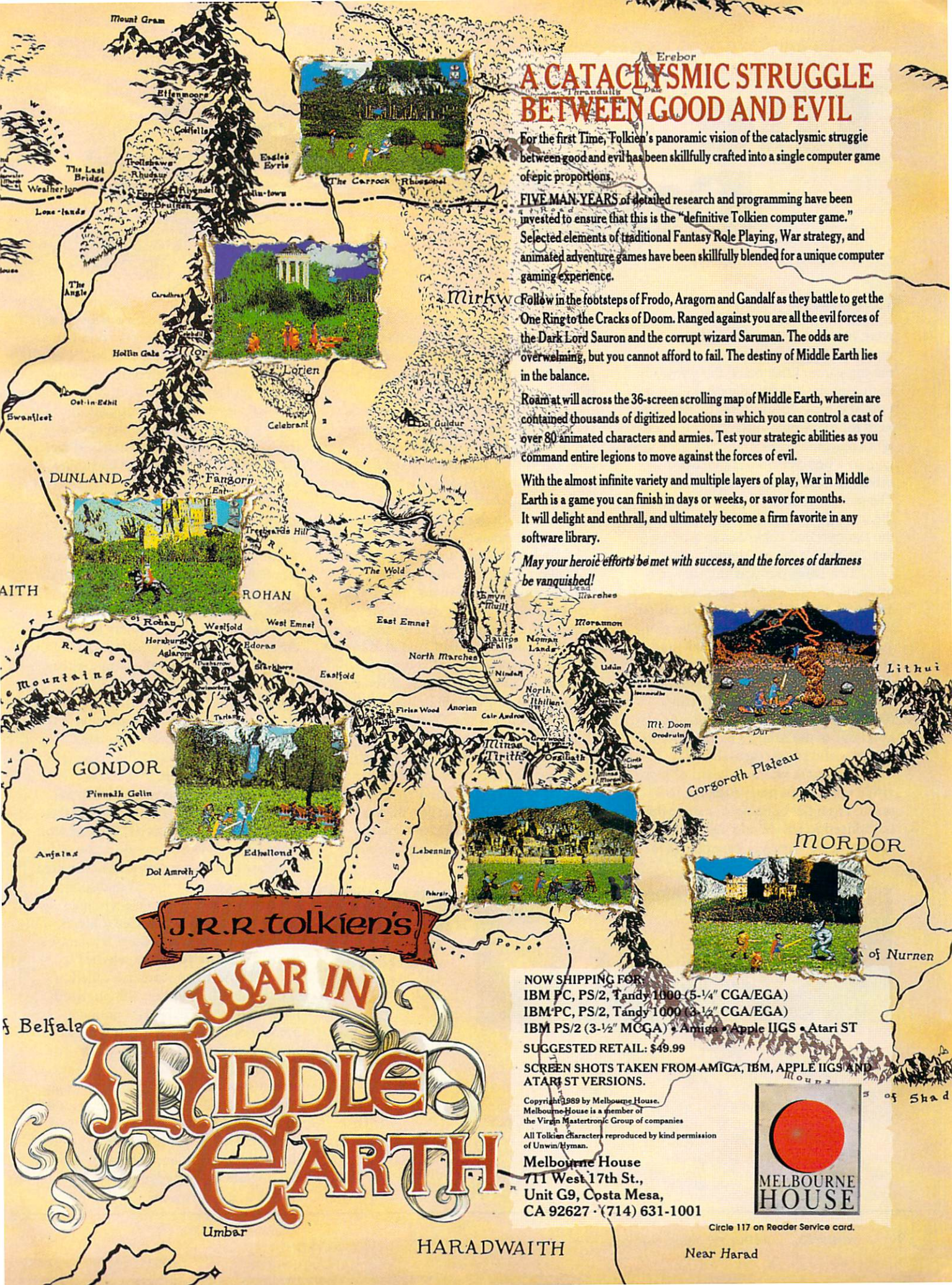
The Eating competition rounds out the contest. Players compete to be the first to finish a potful of stew. The trick here is to keep from filling your belly with air by improper chewing. If you do, you will have to belch, which is not only bad manners, but is time consuming.

When the game begins, the player has the option of playing all the contests in sequence, or any one individual contest. If you are going to play against the computer, I suggest you play the games individually first. That way you can spend as much time as you need figuring out how to compete successfully. Each contest involves some combination of joystick movements. Sometimes the movements must be "timely" to be effective . At other times, it is more important to be accurate.

I found the graphics and animation quite entertaining. Instead of trying to make them "realistic", the developers went for the cartoon characters look. Some of the facial expressions, especially the eyes, will catch your attention—but don't watch them too long or your opponent will get the upper hand. The music, voices and sounds are digitized and enhance the game tremendously. These sounds often provide the timing necessary for the joystick movements. When all is said and done, I have to admit that Western games is a lot of fun to play. It is certainly a lot different from most arcade type games. After all is said and done, Western Games is an interesting game that is a lot of fun to play. Western Games may be an extreme, but it is this type of creativity that can provide quality entertainment for gamespersons of all ages and experience.

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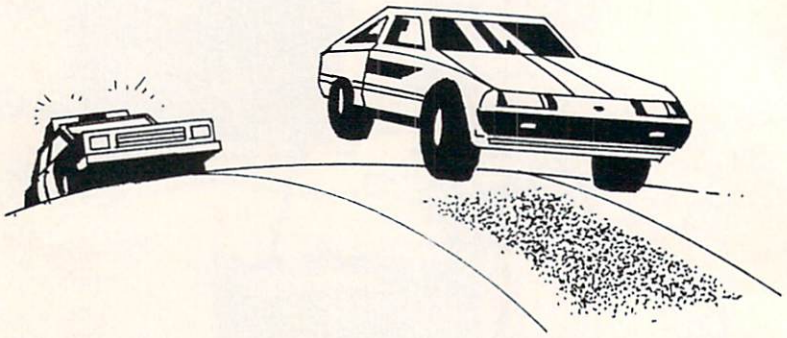
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The Duel



by Joe DiCara

If you purchased Test Drive you were not alone. Over 400,000 people bought Accolade's first attempt at a driving game. What made this program such a success, especially on the Amiga? First, the game format was the first of its kind for the Amiga and for most of the other machines. Test Drive attempted to give us a first-person perspective of driving a high-performance sports car. The game's theme was loosely based on the movie *Smokey and The Bandit*, and the Cannon Ball Baker Sea to Shining Sea Trophy Dash and Memorial Run.

Test Drive put you and the machine of your choice against the elements, Sunday drivers and, of course, the Law. You had a choice of five of the fastest production cars ever built, and you were equipped with only a radar detector, and all the skill and boldness you could muster against a winding mountain road. Accolade also made good use of the Amiga's high-resolution graphics and sound capability.

The result was a program of high visual impact and great attention to detail. From the opening sequence that introduced Accolade and Test Drive, to the top-score screen at the end of the game, great effort was exerted to produce a class product. I believe this attention to detail and Test Drive's polished nature made it the across-the-board success it was.

So what does one do for an encore? How do you go about making the sequel to such a well received product? Well, you listen and read.You listen to the many phone calls and read the hundreds of letters explaining problems and suggesting improvements and enhancements.

Customer input and comments did not fall on deaf ears or find their way into the round filing cabinet. Every idea was carefully noted and considered. When it came time to commission a new Test Drive, Accolade had a good idea of what they wanted and what direction they would give to Distinctive Software Incorporated, the system programmers.

The result is The Duel: Test Drive II. Just about everything good in Test Drive was retained, and many things from our wish lists were incorporated into The Duel. Of course, nothing is perfect, and perhaps the two biggest complaints about Test Drive were the boring, repetitive scenery, and the lack of head-to-head competition. The game's title tells you the competition part has been taken care of. The availability of a scenery disk called California Challenge , and an additional optional disk of super cars satisfies the other complaint.

An interesting aside here concerns the scenery. Those who purchased the initial run of Test Drive and had sharp eyes noticed that the scenery pictured on the back of the box was nowhere to be found in the game. Accolade was inundated with calls from customers wanting to know the secret to accessing that flatland scenery. Obviously, the box graphic was a mistake and Accolade quickly changed the package. But the appetite of Test Drive owners for different scenery was whetted and nothing short of a rewrite would satisfy.

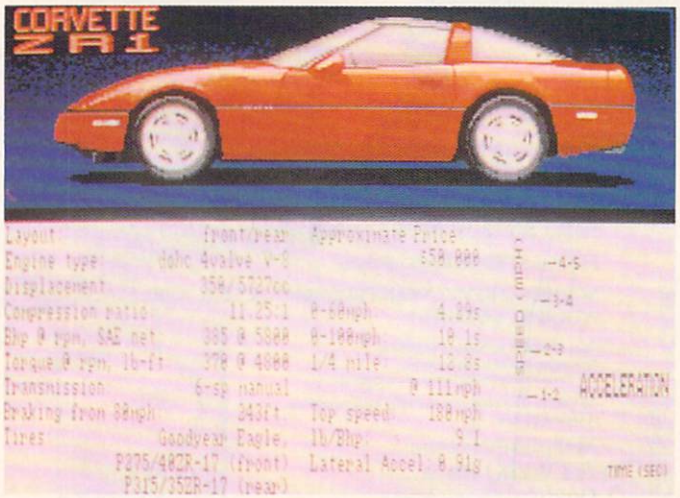


Figure 1: *A look at a Super Car: The Corvette ZR 1*

The game

After The Duel's introduction sequence and demo run (you must watch this at least once), the program's setup menu is loaded. This menu displays the six icons representing the game options. Along the bottom of the setup menu are four icons. The first icon, Your Car, allows you to select one of the two cars available for your use. The next icon is called Other Car. This displays your competition if you elect to race against the computer. A nice touch is that you can generate and race against a clone of the car you have selected.

The next two icons are called Scenery and Install. You will not need these unless you have the optional scenery or car disk, or if you want to install Test Drive II on a hard disk. The two biggest icons across the top of the screen show a stopwatch and an Amiga 1000. Select the stopwatch and you load essentially an upgraded version of Test Drive and race against the clock. Select the computer icon and you race against the opponent selected, either an F40 Ferrari or a 959 Porsche.

Start 'er up

So now it's time to drive. Do you want to race against the clock or the other guy? Highlight and select one of the two big icons and you're off to the Skill Section screen. There are twelve levels of difficulty and, as the manual states, they range from Wimp to Stud. The first four levels incorporate automatic shifting, a result of user input. This feature is a big help to beginners because it means they have to worry about one less thing while they learn to drive.

A feature I liked in Test Drive that is not in The Duel is the option to shift the gears as defined by the shift gate of each car. This allowed the driver to bypass a gear. It wasn't always useful and it took practice—especially if you switched cars often. It was just a nice touch that added to the driving experience.

The road to...

After you select the level of play, a click starts the program loading. Soon you are presented with the familiar view of a highly detailed dash, but a glance out the windshield reminds you that you are about to drive something new. Let me highlight some of these new features.

The change of scenery is, of course, immediately apparent, and while the terrain is different, the style of the artwork is very similar to Test Drive. Push the joystick forward to accelerate, and as the cars starts to move, you will notice the next major change. The road in the original Test Drive was a simple shade of grey. The Duel uses two alternating shades of grey for its road. This creates a better sense of motion and gives the impression of higher speed.

The game speed is faster, but this graphic technique enhances the illusion. As you drive, you will notice that almost all the gauges—gas, oil pressure, oil temperature, water temperature, and vacuum gauges—work. It pays to watch these gauges. Overstressing or revving the engine now affects performance. The harder you drive, the higher the engine temperatures get, which results in loss of power. Details!

The radar detector is enhanced and now has different modes and alert sounds. You will notice that the other cars you encounter are all recognizable: a Thunderbird, a Mercedes, and a Chevy AstroVan. The cops were even upgraded, they now have a siren.

Probably one of the best changes was the interaction with the gas station at the end of each driving section. In the original Test Drive, you will recall that shortly after you passed the gas sign, the program abruptly stopped, informed you that you successfully made it to the station, then presented the gas station graphic.

In The Duel, shortly after you pass the gas sign you will see in the distance what appears to be a white line across the road. As you approach, you realize it is actually two lines, and off to the side is an honest-to-goodness gas station. You must safely gear down and stop between those lines or else you will not receive any fuel. If you are too far to the center of the road, you are told that the hose does not reach and you cannot be refueled. Very nice!

To help you gauge your distance to the gas station there is now a "miles to go" digital readout. To help measure your progress within each section an elapsed time readout is also provided. These readouts are overhead instruments.

What else has changed? The road pitches, rolls, and curves more. Enter a curve at too high a speed, and the car will exhibit understeer. Sometimes the hill blocks your view down the road and oncoming traffic cannot be seen. Do you have the nerve to pass on a hill or around that blind curve? Pressure! Mountain passes have long and short tunnels. Hearing the echo of your thundering engine while in the tunnel might have enhanced the effect here.

If you drive off the side of the mountain, be prepared for a little fall. When you crash, you get the usual

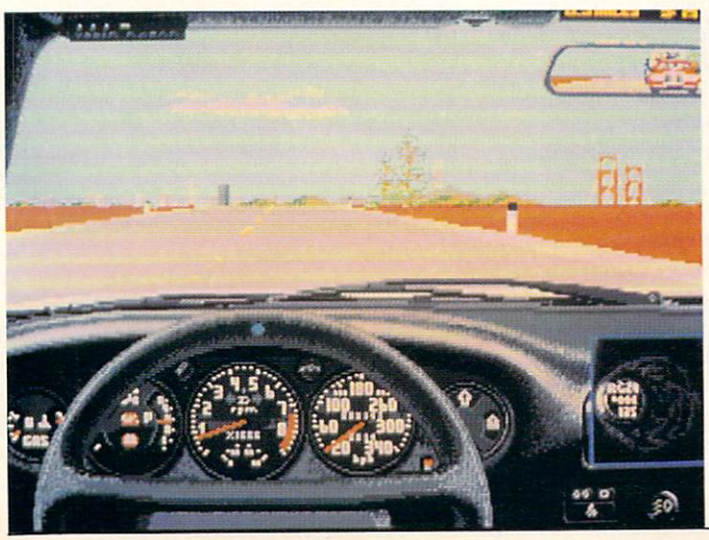


Figure 2: *Behind the wheel and ready to duel*

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cracked windshield, but now there is a horrendous crash as you see the hood crumple. Your opponent can also crash. It's not at all spectacular but it proves that he is also prone to mistakes. If you drive off the shoulder onto the grass or sand while driving along the desert or the seashore, you rapidly lose traction and speed. Hit anything while off the road and the gear you are in may break and you must then shift around it. If you hit a sign or fence post your speed also drops.

A glance at the speedometer reveals higher top speeds for most cars. Blow the engine and black smoke fills up the rear-view mirror. The digitized engine sounds are now seamless and very smooth in response to acceleration and deceleration. Most cars also have their own distinctive sound. After completion of a section you are rewarded with one additional life, and there are two new screens full of race statistics.

The steering has been changed to self-center. I had to get used to this, but now I like it very much. It gives you a positive feel for the center, and actually responds as a real car might if you were to release the wheel. There are many more new features and details, all of which add up to a greatly improved game that will challenge you and give you many hours of enjoyment. Sometimes sequels fail miserably. The Duel succeeds wonderfully.

Bumpy roads

What would I change or add to The Duel? Actually very little. I would have liked more variety in the color of the traffic vehicles. An option to eliminate all traffic and cops so I could race the "other guy" unimpeded would have been very nice. A game like this should support the mouse, and an anolog joystick. Give me back my shift gate patterns, and let me race at night.

Is there anything wrong with The Duel? Well, you might have difficulty setting up the game for use with the optional scenery and car disks. The program requires that all disks not be write-protected. I certainly do not like this or understand the reason for this; the scores and statistics are always being updated and retained. But in this age of the virus, I wonder how long my unprotected, non-copyable disks will survive?

Computer requirements

The Duel comes on a single disk. The game and all optional disks are copy-protected, but provision is made for installation of all disks on a hard drive. The second page of the manual describes this straightforward procedure. Please read the instructions carefully and all will go smoothly. After installation, the program is booted from the main disk and then selects all other files from the hard drive.

The Duel will run on all Amigas, needs a minimum of 512K, and uses 1.2 or higher Kickstart. When optional disks are available, any additional drives are utilized. A well-written 15-page manual documents the use and features of the game. The manual carefully describes the procedure for using the optional scenery and car disks and making a play disk for customizing the game. I have been assured that if you carefully follow the instructions, you will not go wrong. My bet is Accolade will receive many calls about that Install option screen.

Future development

Well, the future actually depends on you. If The Duel and its optional disks are as much a success as Test Drive, there will be follow-up products. The bets around here are that The Duel is so much better that there is no way it can miss. Accolade thinks that with reasonable success, optional disks could be available around the end of this year.

What other surprises might Accolade have in store for Amiga owners? Well, by summer, Grand Prix Circuit will be released. They say this one will blow Ferrari Formula One away. I can hardly wait!

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Product Information

Accolade
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Baal

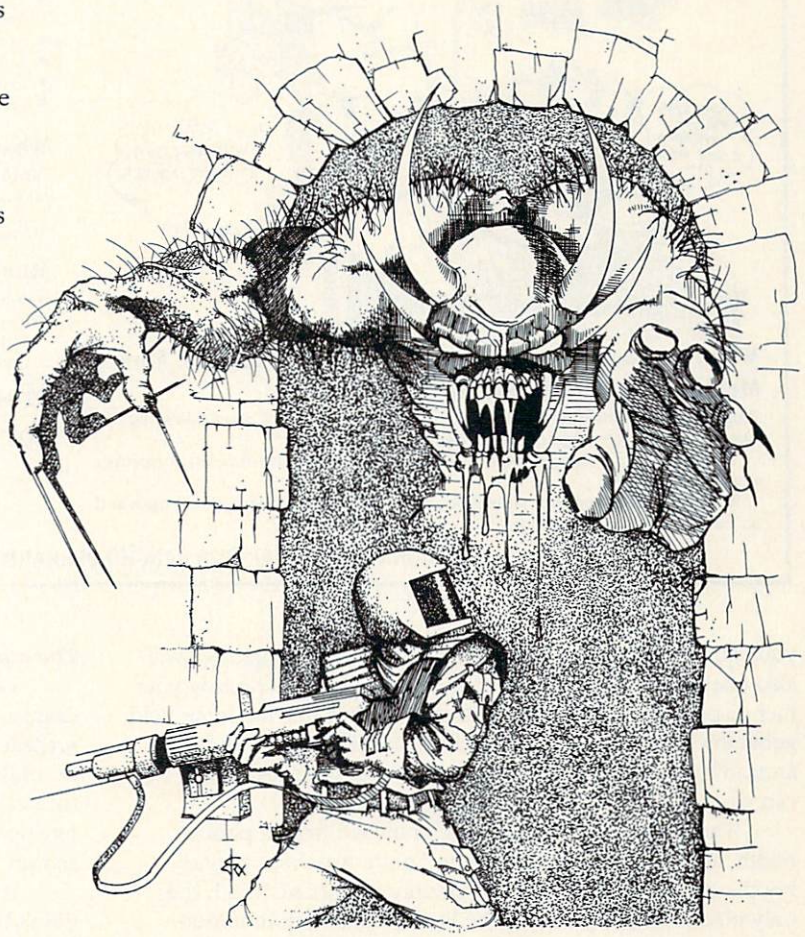
Enter the evil world of Baal, recover the war machine, and save civilization—if you live!

by Derek J. Perry

On June 5th, 1999 an archaeological expedition finds a mass burial of painfully mutilated human remains. After further excavation of the site, the archaeologist uncover a large stone slab. The word "Baal" has been inscribed in the center, surrounded by hieroglyphics of horrid horned mosters of various shapes and sizes. The expedition decides to remove the stone slab, but in so doing they release Baal, the evil deity, from inprisonment. Baal sends his army of demon monsters to steal a top secret war machine which would give him the power to rule the world.

An elite squadron of soldiers are formed by the request of a war council. Their mission: enter the evil world of Baal, find the war machine, and destroy the evil devil god. They are code named the Time Warriors, and you are in control of a squad of five of them. The fate of the world has been placed on your shoulders; it is up to you to bear the task.

Baal is produced by Pysgnosis, and it requires at least 512K of RAM with 68010 and 68020 microprocessors. It is an autoloading program which once loaded is started by pressing the space bar.



Entering Hell...

The game consists of three domains which make up the lair of Baal. Each domain contains pieces of the War Machine spread out through it. You are required to find all the pieces of the machine and transport to the next domain. The transporter will not work until have obtained all the pieces of the machine in the domain.

In your search for the pieces of the War Machine, you will be confronted with many obstacles. Force fields protect certain areas of each domain, and they can only be destroyed by eliminating their power source. The force fields are powered by large generators found near the force fields. Be careful not to touch a force field, because if you make contact with one, it will destroy you.

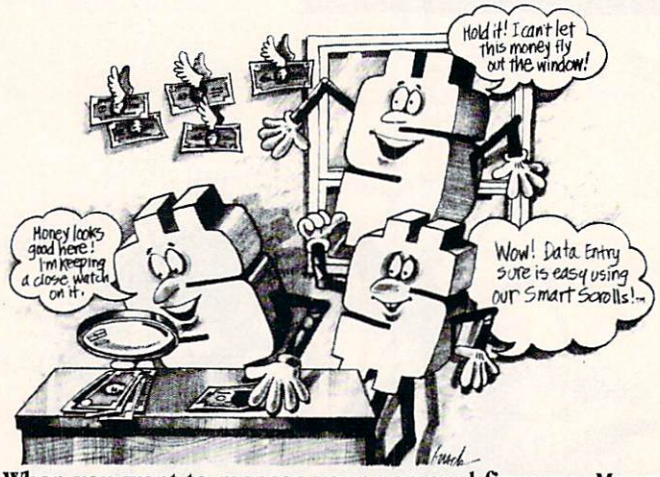
You must also be conscious of the red land mines sprinkled throughout the domain. Step on them and you are a mushroom cloud. (That's what it looks like when you are killed in the game.) Avoid the mines by doing flips over them. (The instruction manual calls them somersaults.) A flip/somersault is also the only way to make it over the gaps you will encounter on the walkways of the superstructure. Fall in, and you are vapor!

The disgusting mutant demoms you must blast on your way to met their boss have two ways of nuking you. They can spit nasty little fireballs at you, which will weaken your energy shield and eventually kill you; or they can simply touch you. Your energy shield can only protect you from missiles and fireballs. If a scumbag demon monster touches you, you're toast! The demon monsters are nastly little creatures that come in all shapes, sizes and colors. Some can fly, others have to walk , and some don't move around at all. There are nakes stuck to the ground in what looks like a puddle of slime. You will see flying dragons, spitting toads, and some mean old snake guys that shoot arrows at you. There are about six types of demons in the first domain alone.

Besides your energy shield, you can use other things to upset the bad guys. An energy scanner acts as an early warning system by flashing an appropriately colored arrow at the top of the screen to warn you of approaching monsters. The arrow will flash the color of the monster that is approaching. The energy shield and scanner are the only two pieces of equipment, other then your laser cannon, that you bring into the game. All others will have to be aquired during play.

As you fire your laser cannon it will lose energy. There are electrolite fuel dispensers located throughout the domain that

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you can use to replenish your fuel supply. This dispenser will also energize your energy shield. Be careful not to destroy your fuel dispensers; if shot, they will explode just like the force field generators. You can find rocket fuel pods in various locations around the domain which supply power to the rocket pack you can wear.

The rocket pack can only be launched from a phone booth. That's right, I said a phone booth! Are there phone booths in hell? Evidently, yes. Not only is a phone booth the only place a rocket pack can be launched, but more importantly, it is the only place one can land. The rocket pack burns fuel faster than a '62 Cadillac. If you run out of fuel—and you will—back in the toaster you go. Nevertheless, it is the best means of moving around the domain.

While you are flying with the rocket pack, your laser cannon will not fire, so don't go looking for monsters with the rocket pack. Try to find a phone booth as soon as possible. The rocket pack is convenient, but it is also a pain! The last little helpful items that you can find in hell are weapon cartridges. They, once found, can increase your cannon power. There are four lazer modes, and three cartridges. You start at mode one, which takes much-o-grande shooting to kill something, and as you aquire the cartridges your cannon increases it ability to zap those evil zipper heads.

I played Baal at least fifty times over one weekend, and I never got out of the first domain. At best, I had collected maybe half of the War Machine pieces from the first domain. It is fun game to play, but it is also very difficult. At the pace I was advancing through the game, I'd probably meet Baal sometime next month.

The complaint department is closed!

Despite my inability to save the planet from the evil doings of Baal, I was very impressed with the game. The graphics are top notch, and the sound is appropriate. There is no music in the game, but I usually turn it off anyway. I had no techical problems with the game at all. It moves along with out having to wait for the drive to search the disk, unless you have scored a high score. Hey, that's the price you pay for fame!

If I really had to come up with a problem or something I didn't like with the game, it would be that the game is always the same, as are 99.9% of all computer video games. The obstacles are in the same place every time you play the game. Once you learn the pattern of the game, it no longer becomes a challenge and is no longer fun to play.

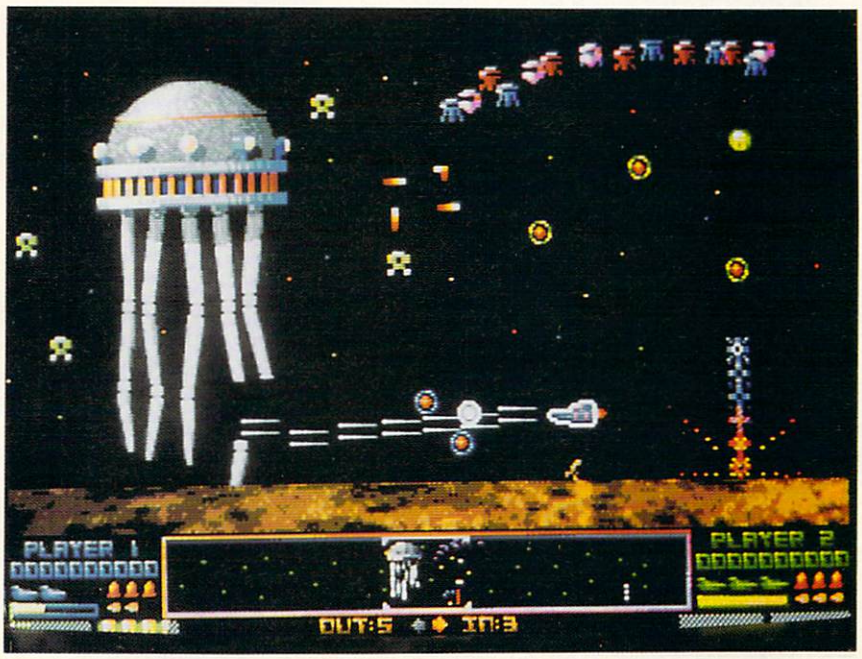
Baal is a fun and exciting game with good graphics. I would call it a Blastoid Deluxe game, because you just don't blast away aimlessly at everything. You actually have to outsmart some of the bad guys. This game would make a valued addition to anyone's game collection. I would give the developer a high five!

•AC•

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datastorm

review by Paul Costa



With the current deluge of Amiga games that seem to favor complexity over "old-fashioned" playability, it is refreshing to play a game that takes an old favorite and adds color and detail, and doesn't removing what made the title a "hit" in the first place. Uncomplicated action! Visionary Design Technologies has done just that by using Atari's "Defender" as a base, then greatly improving it with FAST detailed graphics and digitized sounds, without losing the flavor that made the original so popular in the arcade craze of the early eighties.

For those who are unfamiliar with Defender, the premise is relatively simple. The full-color medium resolution screen is divided into a large upper window and a smaller lower field which contains the "radar" display and other useful player information such as the number of lives, smart bombs, shield strength, and bonus weapons such as rapid-fire, missiles, etc.

The top window contains a side-view of your ship, and horizontally scrolls a simulated planetscape. Your ship can cover the entire surface in several seconds without reversing direction. Waves of varied alien ships suddenly materialize in this window in constant intervals, with each wave containing deadlier aliens than the previous wave. The lower "radar" portion of the screen contains a miniature version of the entire surface with aliens, player(s), and men clearly shown by color-coded pixels. The object of the game is to pilot your ship to the surface and pick-up (one at a time) the eight men and bring them to safety by flying through the vertical gate positioned somewhere on the surface.

If all eight men are destroyed or successfully picked up by aliens and converted into red mutants, the mutant waves suddenly materialize and (usually quickly) overwhelm your ship with sheer numbers. If you succeed in rescuing all eight and destroying the mutant waves, you get bonus points and bonus shield strength. You will need the bonus to help ensure survival of the next wave.

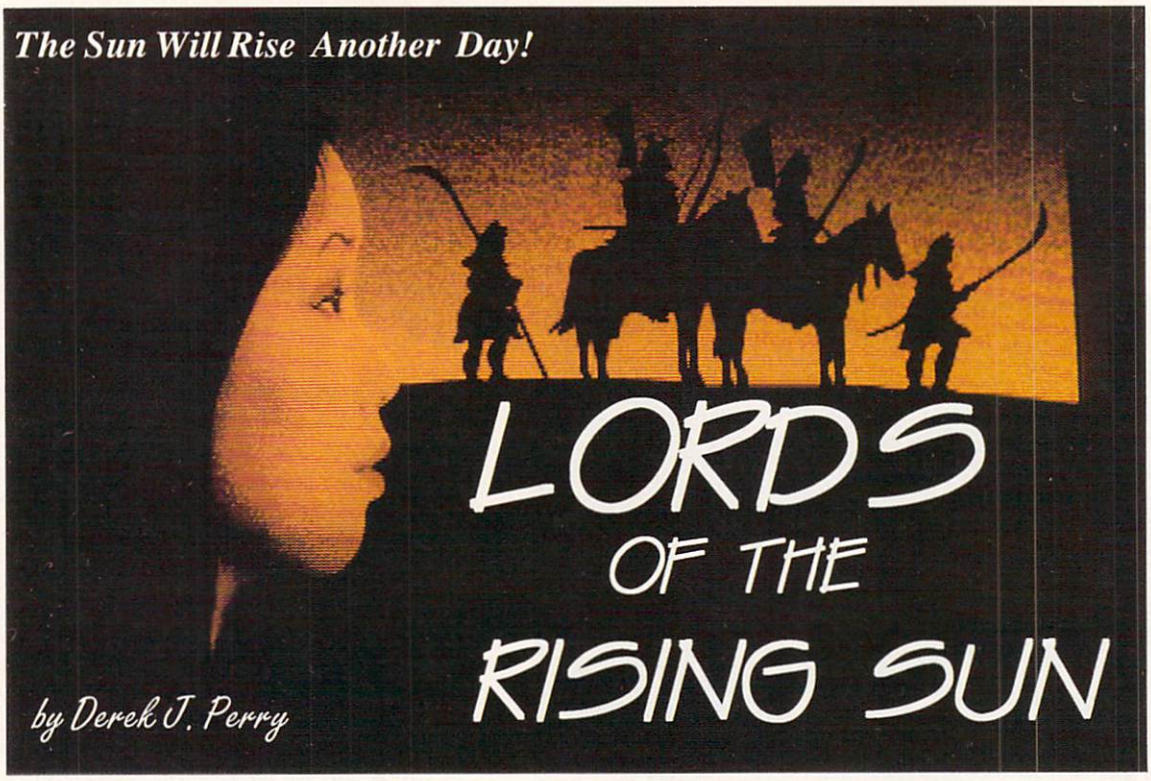
The programmers of Datastorm also included an options screen where you select single player, double player, or double player teams with both players working together to complete each wave. A word of warning though, the double player option has a bug in it: one player must die if the other picks up a rapid-fire bonus! (This cannot be avoided if both players wish to complete the current wave and continue with the game.) This problem is small and easy to fix but can be an annoying deterent to using the two-player option.

Other useful options include the keyboard control with user-definable keys and the choice of starting level speed (starting at any level over level two is only for gamers with VERY FAST reflexes!) Joystick response is very good but at the higher speeds I noticed errors in collision detection which may mean that shots which should have hit aliens seemingly pass right through.

Although Datastorm currently has a few bugs which should be fixed, I found its fast arcade action and ability to draw people back to play "just one more game" is more than payment for the flaws. I would recommend this game to anyone who has enjoyed Defender in the past or anyone who enjoys action-oriented arcade games now.

•AC•

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Lords of the Rising Sun, by Cinemaware, is a strategy game based on the Gempei wars of ancient Japan. The Gempei wars, the result of a power struggle between the Taira and Minamoto clans of feudal Japan, were the subject of many romantic and heroic tales in Japanese literature, which are as popular in Japan as the Authourian legends are in English literature. The game includes a booklet which briefly but satisfactorily explains the history of the Gempei wars, as well as, ancient Japanese culture and tradition. For you intellectual hackers, the software also includes a reading list on feudal Japan. Interesting concept——you can actually learn something from a video game! Who said they were only for mindless juveniles?

At the break of dawn

Lords of the Rising Sun automatically loads into memory, so you are not required to enter any commands to start the program. The loading time is proportional to the amount of memory in your Amiga. The more memory you have, the longer the program will take to load into RAM. Memory size also affects the speed of the game. I played the game on an Amiga 500 with 1 meg of memory and I was constantly waiting on the computer to search the disk.

The game is controlled by the mouse (which left me with some real horror stories that I will explain later). Following the opening credits, you chose which of the Minamoto brothers—Yoritomo or Yoshitsune—you want to be. Yoritomo is older but has less battle experience than Yoshitsune. Thus, Yoritomo must prove himself by taking part in battle. Yoshitsune is a great warrior with little leadership experience, so he must prove himself as a warlord. Choosing Yoshitsune will result in a purely strategic game, while choosing Yoritomo lets you participate in battle sequences.

Battle sequences are where the problems with the mouse come into play. Because of the problems I encountered with the mouse, I had more fun playing the game as Yoshitsune than I did playing the game as Yorimoto. But other than the problems with the input device, I noticed no difference in playability between the two brothers.

Under the sun

At the start of the game, while you are at your home castle, you have the opportunity to enter your home. On your first time playing the game, I suggest that you do so. This will familiarize you with this part of the game, while allowing you to make some somewhat important decisions. For instance, you can hire a Ninja to assassinate enemy generals. Entering your home also affords you the opportunity to receive your ratings in the following skills: Sword, Archery, Sieging and Leadership. Only the Leadership skill rating applies directly to you. The other three skills apply to the army at your control.

Once you leave your home, a map of Japan will appear on the screen, displaying the numerous castles, cities, missionaries and ports of the island. The map is used for plotting and tracking the movement of allied and enemy armies. The armies are represented by little samurai soldiers carrying the colored banner of their clan. You move the armies around the island by clicking on them with the mouse and dragging them to the desired location. The screen can be scrolled left and right, allowing you to view about one third of the map. The countryside on the map will change colors with the seasons to give you a time reference. Travel and combat during winter and through summer storms will fatigue an army greatly. Try to limit travel during unfavorable conditions and, if possible, attack only during favorable weather conditions.

Lords of the Rising Sun is a painstakingly slow game. Be prepared to spend a couple of hours playing the game. The longest game I played eclipsed the three-hour mark. If you do not have that much time, you can pause the game and save it.

Even though the game allows

active participation in the combat, it is till basically a game of strategy. The objective is to defeat the Taira. To do so, you must maneuver your three armies to systematically isolate and eliminate as many as eight enemy armies. There are also three allied armies and three neutral armies. It is possible to form an alliance with a neutral army so you can use it as your own. The neutral army will then change its color from grey to your own. I was only able to gain alliance with one of the neutral armies. The other two armies remained neutral. However, the neutral armies are also prone to attack you, so beware of them at all times. Unfortunately, your allied armies (those under your brother's banner) are virtually useless. You have no control over them, and they very seldom do any good against the Taira. I can even recall an occasion where I was attacked by an allied army.

Once you have encountered the enemy, either on the road or at a castle, you have several options. You can review your troops before making any other decisions, which I suggest you do. This will give you an accurate visual discription of your forces. You can bypass the encounter and continue to march, but this may result in the enemy attacking you. The Taira will always attack under favorable circumstances. Alliances and Surrenders may be requested from the opposition.

Finally, you can attack or siege opposing armies and castles. You should avoid confrontation while your army is either lacking in soldiers or fatigued by a long journey or battle. Even though you may have more soldiers than your opponent, they can still defeat you because their army is in better condition than yours. This has happened to me on a few occasions. Live and learn! Attacking in force with multiple armies will almost assure victory. This is the tactic that I suggest; it is too easy for one-on-one battles to go either way. Overextending your forces will only lead to your demise.

Got to love it

When you combine a game from Cinemaware with an Amiga you can count on outstanding graphics. This case is no exception! I could write all day about the graphics, but most game software for the Amiga produces good graphics, so I won't drink that well dry.

Even though the game has some problems I believe it is well thought out. The game successfully brings together originality, history, complexity and unpredictablity. With some revision in important areas, this game could be a treasure to true strategiests. It is nice to have an alternative to Chess.

Love to hate it

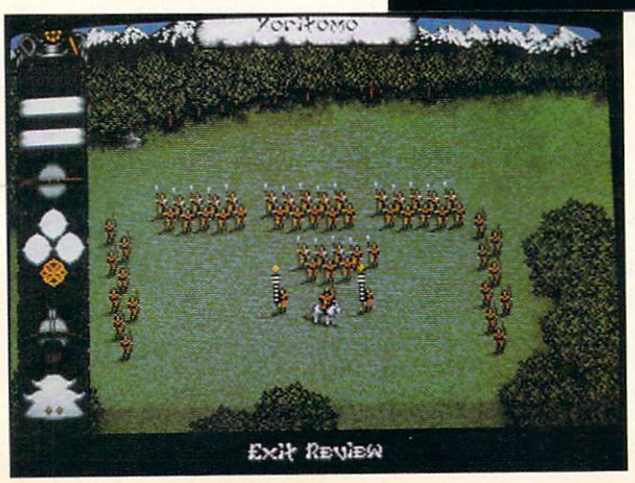
Being outnumbered by an opposition can be very fustrating. It makes the game more than just challenging. It makes it demanding and aspiring! And I just keep going back for more. I caught myself a dozen times wanting more armies. Then I would realize that more is not necessarily more fun; it would become too easy, and easy can be boring.

I have yet to defeat the computer, and I have been robbed a couple of times. I once had the Taira down to just two armies when I was killed by a Ninja. Another time my army was defeated and I was killed by a force of just twenty or so warriors after I had marched a great distance chasing an army I had previously defeated. I had nearly fifty

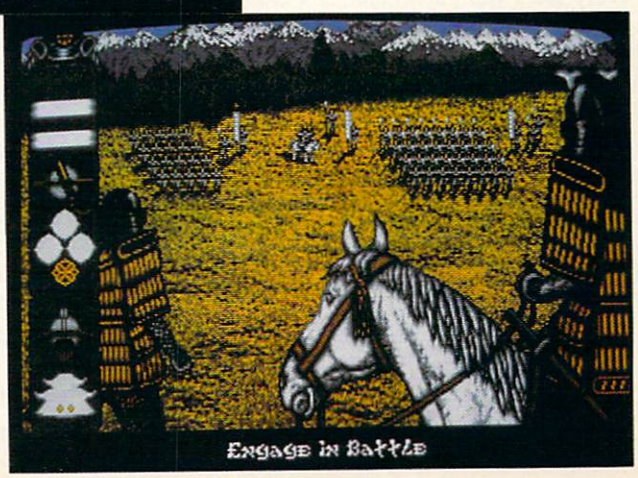
Right: *A summer storm passes over the game map of central Japan.*



Below: *Yorimoto reviews his troops before deciding to engage in Battle.*



Below: *Your view of an opposing force as seen before battle begins.*



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warriors, but when the two armies met outside a Tairian castle, my faith was sealed—a lesson learned the hard way! Nonetheless, the computer's days are numbered, and I soon plan to trample the Taira underfoot and take my place as the ruler of all Japan.—the Shogun!

It would be nice...

Problems. Let's discuss the problems I found in Lords of the Rising Sun. My first and biggest complaint is about the mouse. It is clumsy and awkward to use during combat. I had my butt kicked everytime I went into battle as Yorimoto. This is what I meant earlier by horror stories. Every time—and I mean every time—I went into battle, I was severely and easily defeated. Reliable control over your general on the battlefield is almost impossible to maintain.

In my opinion, the mouse is an unacceptable means of input. It has caused me to stroll pass the enemy right into a stream, where I drowned. Trying to dodge an arrow is about as easy as nuclear physics, and you are expected to maintain control of the rest of your force, all with the same control. The designers are using the mouse to do too much. Cinemaware should incorporate a joystick for the combat phase of play. The mouse falls far short in combat, but it does do a fine job in the other stages of the game.

Another problem I have may also be with the mouse, but I am not sure. When you encounter an army or a castle, a message appears at the bottom of the screen. You then have ten seconds to click on your general with both mouse buttons simultaneously. At that point, the program will bring up the encounter options menu. However, this does not always happen. Sometimes the encounter options menu fails to appear, and the program then makes these important decisions for you. I was unable to establish if this was a problem with the mouse, or if it was a bug in the program. Whatever the case, it would be nice to have control over your own destiny.

Earlier I talked about how useless the allied armies were. If you have no control over them, why have them? Having total control over them would even out the odds too much and take away from the insurmountable odds I enjoy so much. However, it would be nice if you could control the armies' movement and perhaps let the computer control their fate. I don't know, maybe I am asking too much.

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Helpfuls

The hint for the day: Rub Buddha's bald head and hope for the best. Just joking! It is important that you understand that even though you are in control of three generals, you are only playing one of them—either Yorimoto or Yoshitsune. If you are killed then the game is over, so prevent this from happening by using your other two generals as much as possible. Use your leader only when necessary. Try not to leave him isolated where the others cannot come to his aid in a time of need. If your leader gets cut off, you are ancient history!

In a nutshell...

It comes down to this: If you prefer the power of the brain over the power of the blaster, you will probably enjoy Lords of the Rising Sun. It is not an action-packed, "shoot everything that moves" game, so blastiods go home! It is refreshing to know that there is still more to computer gaming then ripping thru a half million aliens from planet "what's it called." Lords of the Rising Sun has its problems, but I still have to recommend it to people who like strategic games. Arcade-a-maniacs might not like this type of game, so if you don't enjoy it, don't say I didn't tell you so.

•AC•

Cinemaware Corporation
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Westlake Village CA 91362
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Lords of the Rising Sun, $49.95
(Inquiry #210)

Dungeon Master

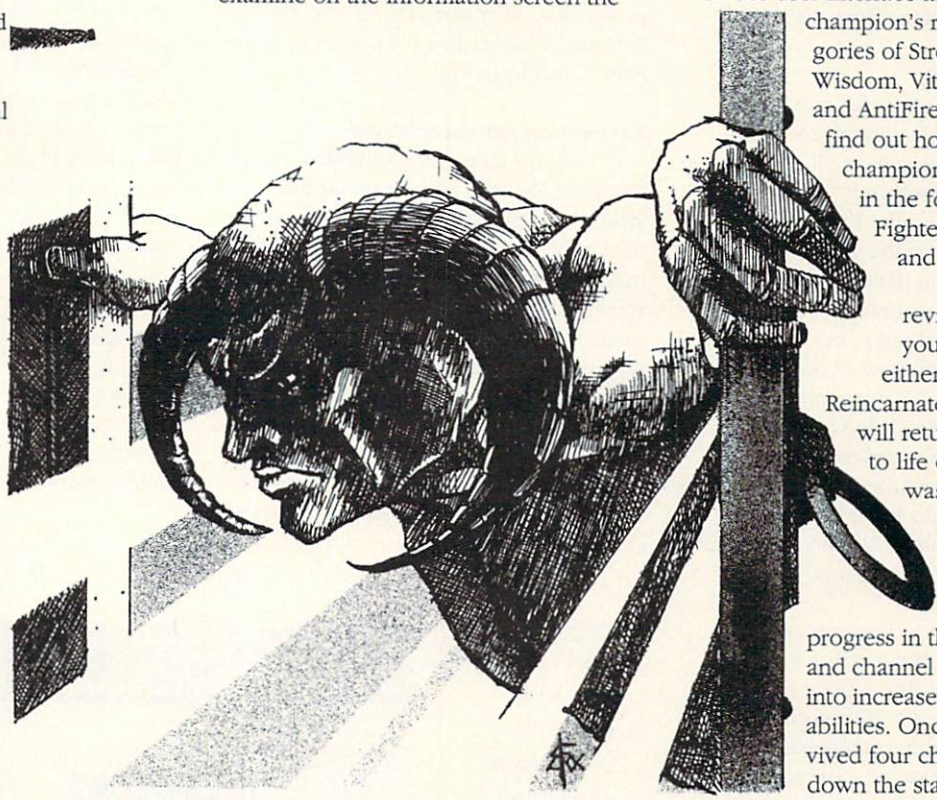
review by Graham Kinsey

DungeonMaster, by FTL Games, is a breakthrough in Fantasy Role Playing (FRP) games for the Amiga. Although we have seen FRP games set new heights in the areas of audio/visual interface (MicroIllusions' Faery Tale Adventure) and complexity (the public domain program Moria), never before has any FRP game for the Amiga had so much to offer in both areas.

The premise behind DungeonMaster is this: You are an apprentice to the Grey Lord, a powerful wizard whose mind and body have been torn in two by a magical force created from a failed experiment. Your master now consists of two entities - a good side (Librasulus), and an evil side (Lord Chaos). While the good master is trapped in another dimension, unable to influence the material world, Lord Chaos is free to bring death and destruction in the material world.

Though you haven't been torn in two by the magical force, you are trapped in an alternate dimension. You cannot enter the material world as a physical entity, but you do have the power to funnel your thoughts to others, and restore life to up to four former adventurers whose attempt to confront Lord Chaos in his dungeon resulted in their gaining a preferred spot on the Lord's trophy shelf. Your goal is to revive the four champions, then help them traverse the perils of Lord Chaos' dungeon and recover the FireStaff, a potent magical device that will allow your good master to enter this world and destroy Lord Chaos.

At the start of any new DungeonMaster game, you are placed at the entrance to the dungeon. Upon entering the dungeon, you will find yourself in the Hall of Champions, where 24 adventurers are trapped in magical mirrors. You may magically touch a mirror to examine on the information screen the abilities and characteristics of any champion. The information screen displays the champion's Health, Stamina, and Mana ratings. Health is equivalent to hit points, while Stamina shows the champion's physical condition. Mana deals with the champion's ability to cast magical spells. Some characters will have a Mana rating of zero, which means they are not able to cast spells.



Next to these ratings is the Load rating, which tells how much weight (in kilograms) a champion may carry while walking without becoming fatigued. Also, you can immediately see if the champion still holds any material possessions (that Lord Chaos didn't bother to snatch before imprisoning him/her). Click on the Eye icon (more on the user interface later) to view the champion's ratings in the categories of Strength, Dexterity, Wisdom, Vitality, AntiMagic, and AntiFire. You may also find out how far (if at all) the champion has progressed in the four professions of Fighter, Ninja, Priest, and Wizard.

If you decide to revive a champion, you can click on either the Resurrect or Reincarnate icons. Resurrect will return the champion to life exactly as he/she was before death. Reincarnate will wipe out a champion's memory (wiping out progress in the professions), and channel that knowledge into increased physical abilities. Once you have revived four champions, walk down the stairs, and begin the adventure!

No typing text adventures

DungeonMaster's user interface is 100 percent mouse-oriented. If you are sick of text adventures, and typing in general, you'll love DungeonMaster. When you see an object lying on the floor, you don't have to type any command in order to pick it up. You just move the pointer to the object and click

on the icon. When you want to attack a monster, cast a spell, or open a door you simply use the mouse to select various icons. Although there are dozens of icons in DungeonMaster, two thirds of the screen is still devoted to the dungeon view display (unlike Bard's Tale's tiny view section).

Not only are graphics used to display icons, they are used for just about everything else in DungeonMaster. When a monster approaches (from the front, that is) you can clearly see a colorful creature moving in front of you, just waiting to inflict injury. Every object in DungeonMaster is also represented by a graphical image. Thus, by simply activating the characters' menu, you may view what the characters hold in their various storage packs. And, needless to say, the walls and floors of the dungeon are filled with important objects able to affect your party - sometimes drastically.

Strategic planning

Although I've thus far only talked about the audio/visual interface, DungeonMaster is by no means all eye/ear candy with no adventuring "meat" contained within (unlike Faery Tale Adventure). As far as the adventure itself, there are things you have to worry about before you ever encounter a monster.

Although clothing is not a factor in DungeonMaster (in terms of protection against the elements), water and food are critically important. While water can be found in unlimited supplies at various fountains throughout the dungeon, finding containers to keep the water in can also be a problem. Usually, though, your party will run out of food before running out of water.

Not only can a character perish from malnutrition, but a character's stamina can deteriorate rapidly just from missing a meal or two. Although pieces of food are located in many rooms of the dungeon, many characters have no food to start with, so keeping an adequate food supply can be a difficult task in itself. Of course, there is another way of obtaining food besides picking it off the floor. You can kill and eat certain monsters.

Your arsenal

Speaking of killing monsters, DungeonMaster offers several ways of accomplishing this. First of all, characters with no weapons can always use their hands and feet. Of course, most dragons would snicker at someone who would dare try to kill them without a real weapon (even highly skilled Ninjas in DungeonMaster cannot karate chop monsters to pieces).

There are also a variety of hand-held weapons, each of which can be used in up to three ways. (For example, the attack options for an Axe are Swing, Chop, and Melee.) However, characters who are not very skilled Fighters may not be able to use all the available options.

Ranged weapons such as daggers and throwing stars can be used as is, but an arrow isn't of much use if you don't have a bow. For ranged weapons (whether they are thrown or launched via another device), a special pack in the character menu can store up to 4 projectiles. After one is fired, the next is automatically readied for use without any extra input from you.

Three dimensions of death

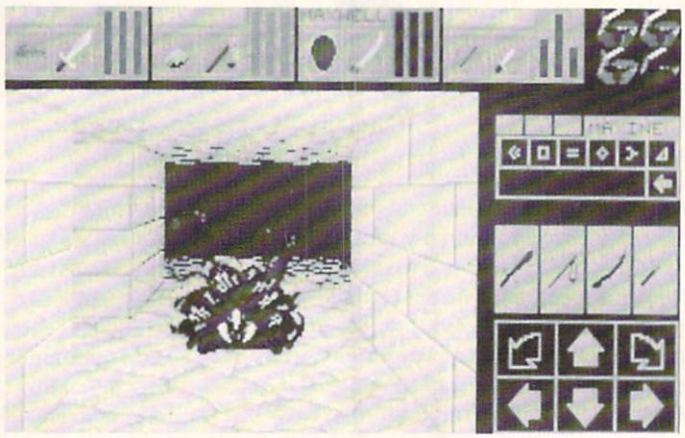
As you might expect with DungeonMaster's graphical interface, whenever you fire a ranged weapon, it flies in 3D towards the target! There are magical weapons too, such as rings and staves. There is also something called a magical box which allows you to imprison any monster in the box, and later release it back into the world. (Just like a Efreeti Bottle, for those who play AD&D.) Not only does this device allow beginning parties to neutralize monsters they just can't handle, it allows advanced parties to save food-producing monsters for later consumption (sort of like a medieval TV dinner).

Bubble, bubble...

There is one final and very important method for killing monsters: the magical spell. DungeonMaster's spell system is different from most in that a spellcaster never casts a spell at once, but rather recites spell components, called syllables, to form a spell. The four types of syllables are Power, Elemental Influence, Form, and Class/Alignment. Each syllable requires a fixed amount of Mana points to be used. All spellcasters know every syllable and, as long as they have enough mana points (surprisingly, even the most powerful symbols don't require all that many Mana points), they can cast any spell.

However, only certain combinations of syllables when uttered will produce a meaningful effect. At the beginning of the game, no spell formulas are known by any spellcasters, no matter how far they have progressed in the Wizard or Priest professions. The only way you can find out about spell formulas (other than trial and error) is to obtain spell scrolls located inside the dungeon.

Once you have learned a spell, though, you often have flexibility in casting that spell. Although there are four types of syllables in DungeonMaster, only three actually define a spell. The fourth one, the Power syllable, determines the spell's strength or power. This



Right
In Dungeon Master, you never know what might come up.

makes it easy for a novice Priest or Wizard to use a spell, even if the spell is just too hot for the spellcaster to handle at average strength.

One very different aspect to spellcasting in DungeonMaster is that you need not destroy a monster with a spell to progress in the Priest and Wizard professions. All you must do is practice casting spells. This means you don't always have to face dangerous monsters to become a powerful Priest and/or Wizard. One nasty side effect of this, however, is that any champion who starts the game without any Mana points is at a SEVERE disadvantage. You may eventually find this character's Health rating is only half that of his companions, as characters can progress in all four professions instead of just two. (When a character gains a new level in a profession, one or more of his six attributes will randomly increase, no matter what profession he/she has advanced in.)

While all the tools and powers a party has may seem more than adequate to get the job done, the perils your party faces are troublesome, to say the least. The monsters in DungeonMaster are not only numerous, but varied in attack methods. In addition to normal physical damage being inflicted, many monsters can also deliver poison into a character's body. As you might expect, once a monster delivers poison, it will weaken and eventually kill the character unless the poison is neutralized.

Other monsters have ranged weapon capabilities, or tough hides able to withstand the impact from most blows. Some are completely impervious to physical attacks as they have no physical body to be damaged. There is also a monster called the Gremlin who lives to prey upon unsuspecting parties, quickly snatching an object right out from the character's pack, and running away into the depths of the dungeon before your party even knows what has happened. Monsters don't always attack from the front, though, so your party must remain on guard on all four sides at all times.

But perhaps the most dangerous aspect of combat in DungeonMaster is its real-time quality, which means monsters certainly won't wait for your party to ready their weapons before trying to slice them to bits. So in DungeonMaster, hesitation on your part can have serious ramifications. Of course, you can always hit the Escape key at any time to freeze the game. But, unless you can act very quickly once the game resumes, this may just prolong the terrible fate of your characters.

Even if a monster isn't around to harm them at the moment, your characters must still be on the lookout for traps and tricks Lord Chaos has planted throughout the dungeon. Open pits can bring quick death if a novice champion should fall into one. Fireball launchers can roast a party before you can even figure out how to avoid them.

What's even worse about the traps in DungeonMaster is that often they are triggered without your noticing. For example, there are hundreds of pressure plates on the floors in DungeonMaster, both large and very small. Until your party actually steps on the pressure plate, you have no idea what might happen. And not only must you constantly look at the floor in DungeonMaster, you must also keep an eye on the walls.

There are also hundreds of buttons, levers, and switches in DungeonMaster that also cause a variety of events to happen when activated. Whenever you seem to be stuck in DungeonMaster, chances are you have just walked right past a button that might very well open a passage. (Trust me, it's impossible to notice every button in DungeonMaster's walls the first time you approach them!) Since many of the buttons are very tiny, even when directly viewed, it is almost impossibe for DungeonMaster to be played by people with impaired vision.

Many other features in DungeonMaster are often in the form of puzzles like teleporting beams, force fields, deflection beams, keys and locks (there are many different key shapes/colors in DungeonMaster), coin slots, pressure or item-activated tables, disorientation traps, concealed passages, and inscribed messages on the walls.

The sounds of the dungeon

There are other features of DungeonMaster I've not yet touched, like the sounds in the game. Often, you can hear monsters ahead in the distance way before you can ever lay eyes on them. Also, even if you don't see a pressure plate in front of you, you will know when you have triggered one when you hear a foreboding clicking sound. Also, if a character dies, altars of resurrection are scattered throughout the dungeon.

As long as one of your characters is alive, you always have a chance in DungeonMaster (but keep in mind that a deceased character's remains are not exactly light as pastries, and a wounded character may have enough trouble just trying to carry his own possessions). Of course, you can save the game at any time. DungeonMaster will never alter the saved game disk, even if all your characters die.

There really are very few bad points to DungeonMaster. The only major complaint I've heard from Amiga users is that you can only store one saved game per disk in DungeonMaster, which will require you to devote a few more floppies to the game than you should have to. Since DungeonMaster was ported from the Atari ST to the Amiga, the graphics aren't up to Amiga standard. If they used HalfBrite mode with its 64 colors in lores, instead of the ST's 16 colors in lores, DungeonMaster would have been even more spectacular. While the sound effects were improved for the Amiga version, the memory requirement was also increased to one megabyte of memory. If they did that, they could have at least improved the graphics somewhat.

Yet, as is, DungeonMaster still completely blows away any other FRP adventure game on the Amiga market today, and it may do so for some time to come. If you want a taste of just how good role playing games can get on the Amiga, DungeonMaster is as close as you can get to maximizing the full potential of your Amiga.

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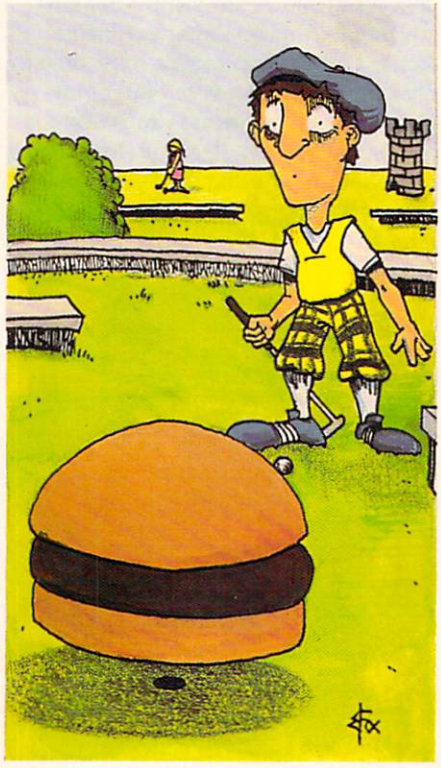
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Zany Golf

review by Joe DiCara

What are the two most frustrating sports? In my opinion, they are tennis and golf. Because they appear so simple, everyone gives them a try. However, it soon becomes obvious that they are complex and technically difficult games to master. The novice soon becomes frustrated. What began as a fun game quickly turns into a nightmare of frustration. The countryside is soon covered with bent rackets and clubs.

But often from the ashes of such frustration, arises an idea that returns these games to the gentle, relaxed nature that the inventors originally had in mind. In the case of golf, that idea is called miniature golf. Now the countryside is dotted with colorful, brightly lit, carnival like little parks filled with young and old, laughing as they try to knock little Easter egg-colored balls into one unusual destination after another.



So when Electronic Arts announced Zany Golf as the golfer's ultimate fantasy and nightmare, they had miniature golf and this program correctly pegged. Zany Golf captures everything that is miniature golf. The opening title screen is a delightfully animated sign right out of the Fifties, with lighthearted arcade music playing in the background. Immediately, you know you are going to have fun with this game. Zany Golf is miniature golf with wild and imaginative holes that can only be done in the mind of a computer. This game gives up to four players the opportunity to maneuver their ball on a nine hole course—through flashing lights with crazy music, under a jumping hamburger; dodging laser beams, particle rays, and transporter pads. Balls careen unexpectedly, disappear in a burst of fireworks and are transported to another level. The imagination is unleashed in holes featuring moving walls, magic carpets, a castle and the classic windmill. There is even a Secret Hole!

The art work, music, and player interface are very nicely done and manage to maintain the lighthearted fun and atmosphere of the game. Each hole has its own title screen and an overview of the hole, which diagrams and describes your objective. When all players are ready, a click of the mouse presents the golfers with the challenge at hand. Each hole is a super-sized, 3D screen. You use the mouse to scroll around the screen, because the tee and the hole usually cannot be seen at the same time.

After you've peeked at the hole, a click on your golf ball activates the aimer. Drawing back on the mouse stretches a line that represents the direction and power of your stroke. Each player starts out with five strokes. When you hole-out, the remaining strokes are carried over and added to the number of strokes for the next hole. If at any time, you use up all your strokes, the game is over for you. But fear not, there are many ways to receive bonus strokes or extra shots.

Zany Golf is enjoyable. All members of the family can join in on the fun. This game is available on all the popular types and brands of computers, and is based on an Apple IIGS program. All the art, music, and code were originally done for the IIGS.

There are times that the action slows a little, which is directly related to the program's origin. Apparently, nothing was done to optimize the code to take advantage of the Amiga's ability to display more colors and move more objects faster. What you see and hear is the same as what you get on the IIGS - no better, no worse. That's my only criticism.

Zany Golf comes on a single, copy-protected disk. The protection scheme is the key disk method—you can make the backup copy you need, but at boot-up, you will be asked for the original disk. A simple instruction sheet explaining boot instructions, game play, and copy protection is included.

Oh yes, the Secret Hole! If you want to know more about it, read on, otherwise stop here.

On one of the holes if you look carefully, you might see a little mouse peeking out. Wait until his eyes light up, then shoot the ball into his hole—and surprise, surprise! Shoot straight and have fun.

•AC•

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Phone: (800) 234-8525
in CA, (800) 562-1112
Zany Golf, $39.95
(Inquiry #215)

Hole-in-One

Miniature Golf

review by Stephen Kemp

When was the last time you visited a miniature golf course? Hole-In-One offers just about everything that putt-putt does with the possible exceptions of fresh air and the feel of a putter. The game comes on two diskettes that contain the program and four courses. Three of the courses offer the usual assortment of odd-shaped putting greens with an unusual hole thrown in just for the fun of it. However, there is one course which contains "holes" that you would probably find in an art gallery rather than on a golf course. More on this later.

When the game begins, you have the option of selecting the tutorial or one of the courses displayed on the screen. I went directly to the first course but later went back for the tutorial after not doing as well as I would have hoped. The tutorial allows you to practice ball position, direction control and putt strength. More importantly, the tutorial will help you to recognize the particular "features" of the green. Sand and water are not too difficult to recognize, but it helps to understand how contours (hills and valleys) are represented.

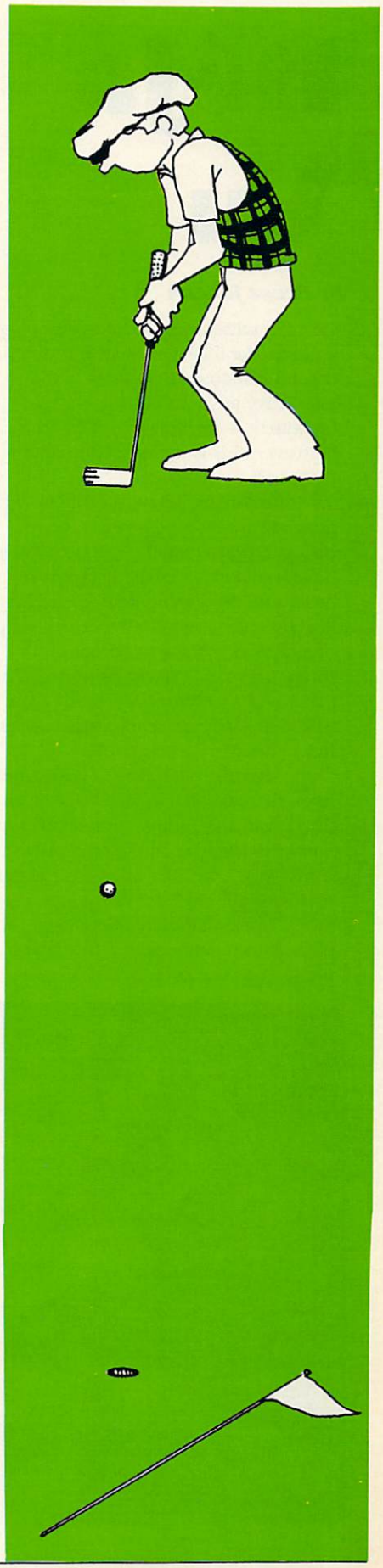
The game is controlled entirely by the mouse. Position the ball on a starting pad with the mouse and "stretch" the mouse away from the ball to control the strength of the putt. A line is displayed (when not in expert mode) on the screen that graphically represents the strength and direction the shot will take. It will take a little practice, but it's not as difficult as it may sound.

Menu options are provided to assist you during the game. One option allows you to display the scorecard. If you have a printer you can print the card out. A Replay option lets you see an instant replay of the last shot. Watching the replay may help you understand how to improve your shooting. Another option allows you to attempt your last shot again. The Retry option can be used to backup every shot on a particular green. Don't worry though, opponents can't cheat on you (or vice-versa) because the retry option will not work when there are multiple players. An option called Contour is provided so that you can get a topical (elevation) view of the hole, if there is such a view. And finally, an Options menu is provided to toggle the sound, player's prompt, expert mode, or to skip to the next hole.

The sounds provided in the game are digitized and entertaining, especially when you make a hole-in-one. The graphics are also excellent, which brings me back to the "artistic" course I mentioned. Each hole is a picture. That's right—just like a painting. In fact, sometimes it is difficult to tell just where the hole is and which way to shoot the ball. However, this just makes the holes a little more intriguing. The entire game is quite a lot of fun and offers hours of entertainment.

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Hole-in-One Miniature Golf, $39.95
(Inquiry #208)



Déja Vu



By Bruce Jordan

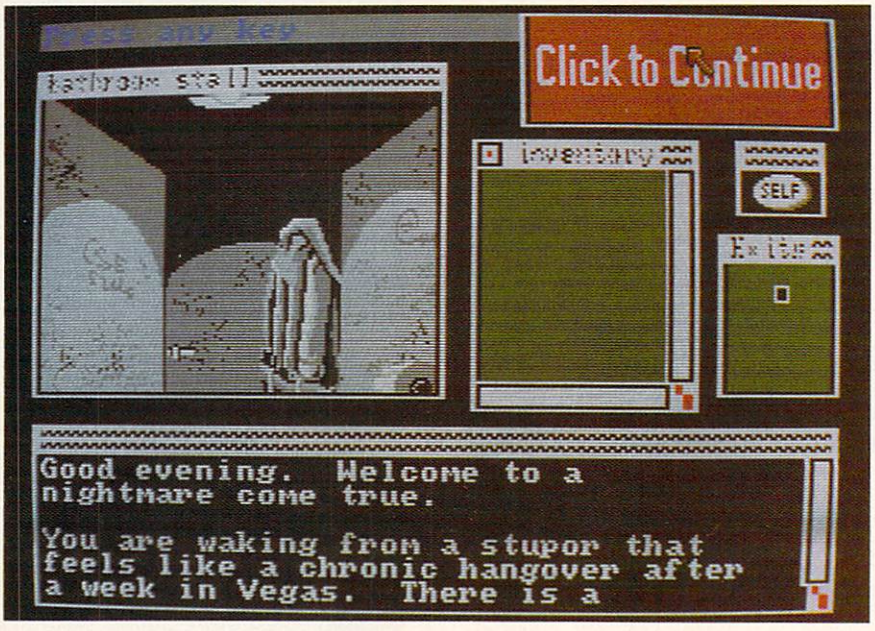
So what's a louse like you doing in a dump like this? The answer to this and other questions is the object of the interactive adventure game Deja Vu (subtitled: A Nightmare Comes True). However, this game is anything but a nightmare.

Personally, I have a problem with most adventure-type games. The dialogue portraying the imaginary world never quite matches the image in my head, and this can be a bit frustrating. For instance, you're told there's a statue of a demon in the east corner of the room. I respond, "Twist its horns." The game replies, "What are horns?" I ask you, what self-respecting demon doesn't have horns?

Anyway, the folks at Mindscape have changed all this with their inventive, interactive, graphic format. Through a framed window on the screen, Deja Vu shows you EXACTLY what your imaginary world looks like. You can touch, move, operate, and interact directly with objects and people within this imaginary world. You can even pull objects out of the picture!

Deja Vu takes you into a film-noir world of the thirties. It's a journey through the seedier side, where violence and passion are the rule, and life is cheap. You are a hard-boiled, two-fisted detective-type, caught up in a tangled web of intrigue and murder. The mystery to solve is complete! No compromises, and no background clues. It's a hunt for answers to questions such as, "Who am I?"; "Who's done what to whom?"; and "How do I get myself out of this mess?!" You're on your own, with nothing but your own wits to guide you.

The best way to get started with Deja Vu is to read the manual. It is brief and well-written(complete with tough-guy dialect). Although it was intended for a Mac, it more than adequately explains to Amiga users the various windows and gadgets used in playing, as well as, explaining how to save or load a game. A brief addendum tells Amiga users how to boot the game from the Workbench.



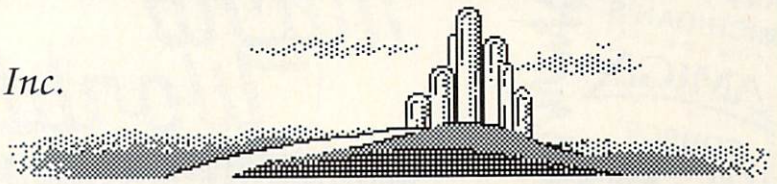
The layout of Deja Vu's playing screen is well-done, almost self-explanatory. The screen is broken up into six separate windows: the Action window, Inventory window, Command window, Exits window, Dialogue window and a window entitled Self. This last window is for when you wish to do something to or for yourself, such as eat food.

In the Action window, you see the unsavory world around you—the sleazy dives, dark alleyways, and suspicious characters. What you see is what you get, though it's not always obvious! By using the mouse pointer, you can examine and move objects, as well as interact (shoot, hit, bribe, and speak) with the various low-lifes you encounter. Surprisingly, certain things you do in the Action window can result in some of the wildest digitized sound effects you've ever heard! The graphics in the Action window are a bit coarse, but well-done and show lots of character.

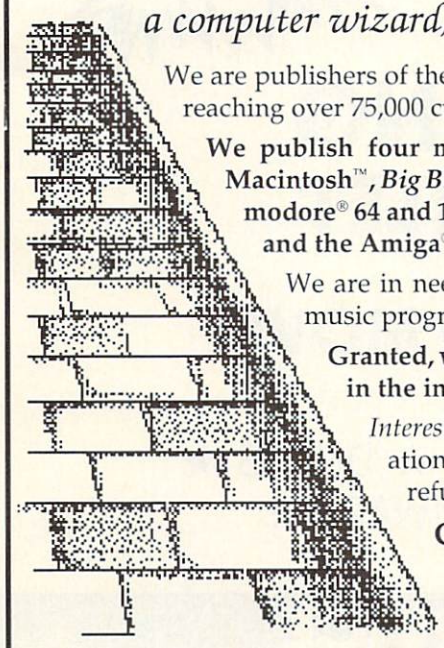
Just to the right of the Action window is the Inventory window. The Inventory window is where you place things that you wish to take from the Action window. To pick something up,

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take from the Action window. To pick something up, place the pointer on the object in the Action window, hold down the left mouse button, then drag the object into your Inventory window. So, if you find a gun in the Action window and drag it into the Inventory window, you're now packing a piece, buster!

The Command window gives you eight commands: Examine, Open, Close, Speak, Operate, Go, Hit (it's a violent world out there!) and Consume. Each of these commands allows you to carry out actions on the people and objects in either the Action or Inventory window. This is done by first clicking on the object or person to be acted on, and then clicking on one of the eight commands.

The Exit window is an interactive display of all the possible ways to move within the area shown by the Action window. For instance, if you wanted to go through an open doorway shown in the Action window, you could either click on the open doorway in the Action window itself, or click on its representation in the Exit window.

Located near the bottom of the screen is the Dialogue window. The Dialogue window gives you a brief description of the action and dialogue currently taking place. A convenient scrolling gadget located on the side of this window, allowing you to scroll back a few lines in case you want to review something which has previously happened. However, make sure you keep a pencil and paper handy for writing down just the facts, ma'am, because you can only scroll back so far.

Do I make it sound too easy for a die-hard adventure game fanatic like yourself? Well, forget it! This game is no pushover. You ain't gonna unravel this whodunnit in one evening, let alone survive! There are plenty of red herrings to trip you up and, just as you think you're beginning to make some progress—WHAM! It's Backtrack City!

To make matters worse, those fiends at Mindscape have added yet another element of danger. As you play, it becomes increasingly obvious that you've been drugged with something which causes memory loss. As gameplay continues, you get the uncomfortable feeling that if you don't get medical attention soon, your memory loss and confusion will become permanent. Therefore, Riddle Number One: How do you keep your brains from going bye-bye?!

As for the overall game, Deja Vu is an excellent adventure and a real brain-buster. The graphic, interactive format makes Deja Vu really come alive, and a lot of fun to play. And, although a tad anachronistic at times, Deja Vu is still a well-done period piece. So, if you like solving "real-world" puzzles, and you like a good mystery, or if you've ever wondered what it would be like to live on the ragged edge of the "Sam Spade" life, then Deja Vu is for you, sweetheart.

•AC•

Mindscape, Inc.
3444 Dundee Rd.
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Deja Vu, $49.95
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To be continued.....

Battle Chess

review by Jeffery Scott Hall

Have you ever wanted to play a game of chess on the Amiga only to find a flat and dull game board which lacks any competitive play? If so, then you should take a closer look at Interplay's new chess game called Battle Chess. After the program has loaded, a title screen will be displayed requesting you to enter a specific chess move, found in the back of the manual. Once the proper move has been entered, you may then proceed with the game. Note that the method of typing in a certain move is the only form of copy-protection used so that you may make backups or install it on a hard disk drive.

The basics of chess

If you have never played chess before, you might be wondering exactly what it is and how it is played. Well, it would take a whole lot of space to explain this in my review, so I will give you just the basics of the game. Don't worry, though, Interplay has put together one of the most complete manuals I have ever found in a chess game, which helps the beginner to become an expert at the art of chess.

The rules are simple : two opponents (either you and a friend or you and the computer) compete against one another. One player will usually be white, while the other player is black. However, in order to make things more visually appealing, the colors will be Magenta and Blue on the Amiga. Each of the two players have the following pieces to move around the game board: one King, one Queen, two Bishops, two Knights, two Rooks, and eight Pawns. The object of the game is to put the opponent's King into what is called the "checkmate" position, enabling the other player to capture it, thus winning the game.

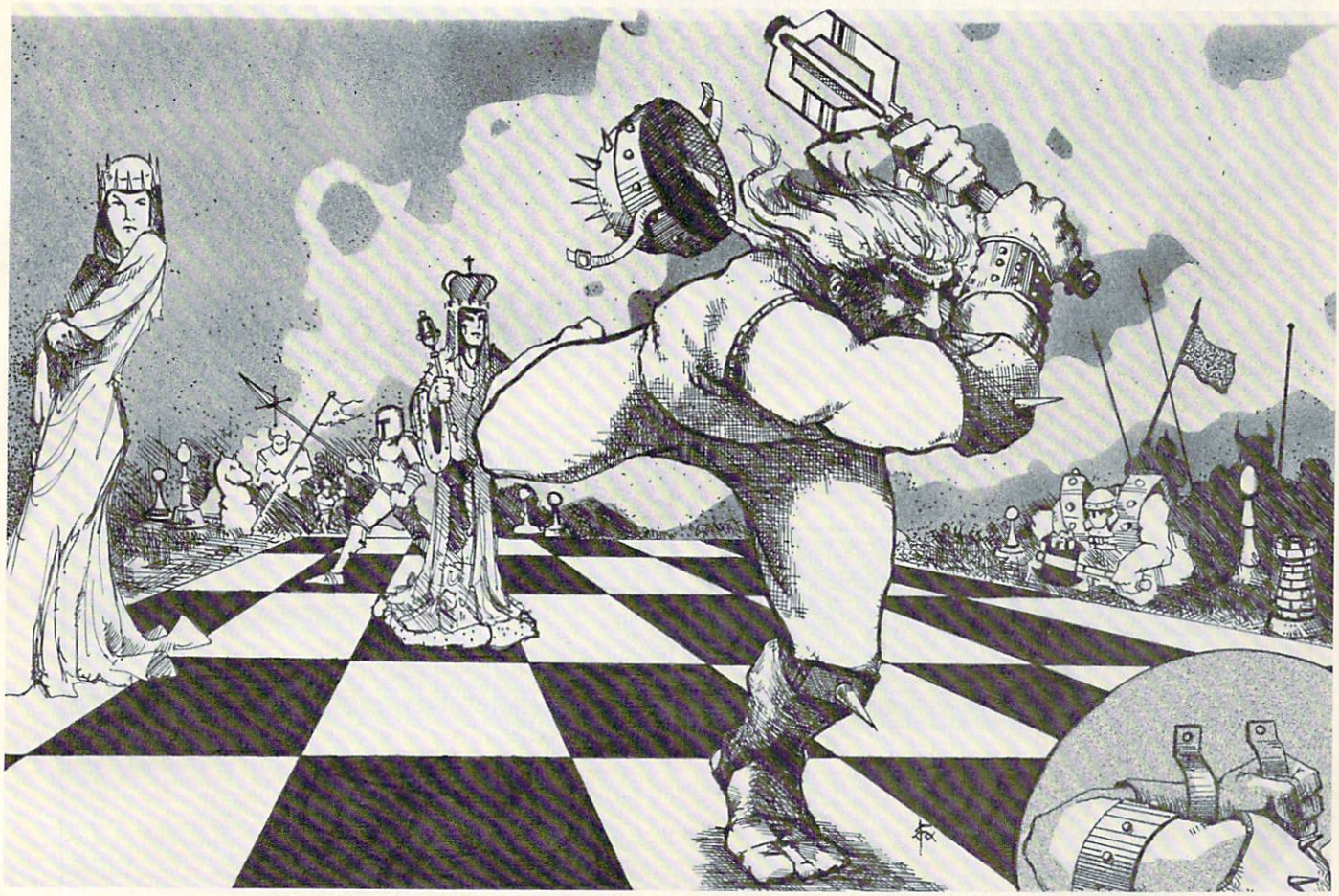
A look at the board

Battle Chess, unlike other chess games, has a rather unique approach to playing the game. I am refering to the way each game piece is displayed on the board. You will find that each of your fully animated game pieces is an artistic masterpiece, showing lifelike character detail. Whenever you want to move one of the game pieces, just click the left mouse button over it, then click the button again over the place where it should be moved. What occurs when you do this is truly stunning : the selected piece will come to life and actually walk accross the game board to the position which you have selected. If you are capturing a Pawn with a Knight, something different will occur, showing the unique quality of Battle Chess. When the Knight is chosen, the two conflicting game pieces will actually do battle for the same game square each wants to occupy. A different battle sequence is constructed, depending on which two pieces are fighting. However, since this is a true game of chess, you will not be allowed to control the two conflicting game pieces during the battle. The winner of the battle is simply the one that makes the correct move, just as if you were playing a real chess game.

The chess board itself is as different as the game pieces because you will be playing on a 3D game board, which truly adds to the movement of the game pieces.The best way to describe the board's color is antique marble with midnight black, which alternate to construct the game board itself. Both the game pieces and the board are truly outstanding to see; unfortunately, describing them just doesn't seem enough.

Game options

Battle Chess contains so many different options that it is simply impossible to describe them all here. So, I will go over some of the more unique and outstanding options which are implemeted. I assure you that any options which are not mentioned are most likely in the chess game. Let's begin by stating that you have full control of the chess game, including some very useful tools. During play, you may save your game to a blank format-



ted disk to load at a later time. As for your options, you can control instant replays of the last move, take back the last move, force a player to move, limit time for thinking per move and suggest the next move. The suggest-move feature allows a player to have the computer look for the best possible move and suggest it by highlighting the squares it thinks should be considered. Note: this option and some of the others described above may not work, depending on your particular level of play, ranging from one to nine. Finally, you may play Battle Chess either on the 3D-enhanced board, or on a 2D flat board with conventional game pieces.

Reach out and check someone

Battle Chess can be played by one or two players, and by two players who are several thousand miles apart. This can be done if both players have a Hays compatible modem and of course, Battle Chess. Playing the game with your long-distance friend is as simple as selecting the modem options from the menu and then dialing the other player on the phone. All moves that are made by each player will be replicated exactly on the other player's chess board. Complete instructions on doing this are included in the manual.

Summary

Battle Chess is the best chess game I have seen on any computer system. They have truly gone out of their way to make it just like playing a real game of chess, not to mention the unique concept of actual play. The graphics and sound effects are great, to say the least, and they have done a terrific job with the manual. Whether you are a novice or an expert in the art of playing chess, you should definitely "check" into this terrific program!

•AC•

Product Information

Interplay Productions
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SNAPSHOT

Hot Amiga Game Reviews

by R. Bradley Andrews

Arcade-style action games can be one of the best things to take your mind off the day's problems. Unfortunately, they can also be extremely frustrating for those who are not superadept at joystick manipulation. Since they are easy to pick up and can fit into small time slots, they are one of my favorite ways of vegging out in front of the computer. This month I will cover three recent releases in this genre, along with a computer adaptation of an old classic and a new fishing simulation. Now on with the show.

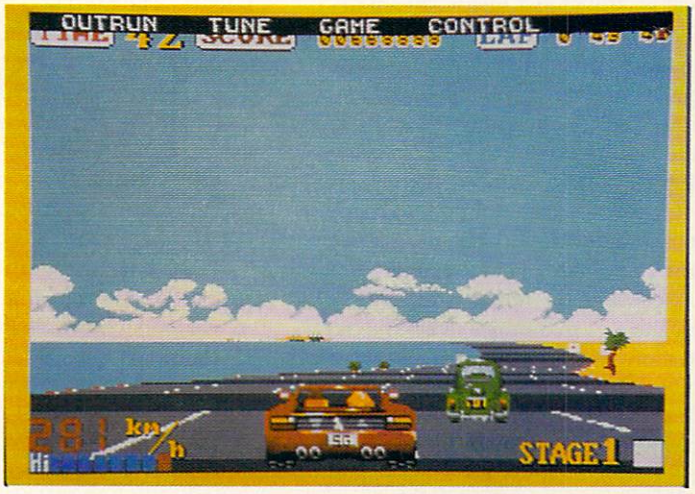


Figure One

A look at the road ahead in stage one of Out Run

Out Run

First on the list is Out Run by Sega, a faithful translation of the coin-op favorite. You must successfully race your convertible from the starting point to the beach. If you can do this within the time limit, you will be awarded a fancy trophy for your exploits. With each game you must race through five different sections. While the first section is the same for all races, the other sections vary according to which direction you choose at the fork at the end of each segment.

Although other cars will often clog up the road, time is the real opponent. You begin with 85 seconds, with 70 seconds added for successfully completing a race segment. The game continues until the finish line is reached or time runs out.

The cars that fill the road drive in somewhat unpredictable patterns, adding challenge to the race. Two other factors complicate your trip: The road is often very winding, and obstacles exist along the sides of the route to the finish. Hitting either an obstacle or another vehicle will cause you to spin out and loose speed, possibly stopping your car completely. Hitting a side obstacle head-on can be even worse, causing your car to somersault several times before finally coming to rest. While your car remains intact through even the worst crash, vital seconds are lost from the clock while regaining control. Keeping speed high without mishap is very difficult with so many obstacles in your way.

The screen is taken up with a forward view of the track just ahead of your convertible. The colors are crisp and clear and do a good job of portraying the same excitement found in the coin-op version. Stereo sound also compliments gameplay. One of three musical scores can be chosen for the background during the race. Quality sound effects, such as the squeal of your tires when turning at high speeds, indicate special actions. One or both of these can be turned off if desired. I prefer to pick the background tune I enjoy most and then turn the volume down so it becomes more of a background noise. The joystick works quite well as the primary input device.

Out Run does have a few flaws. The other cars can often follow completely unpredictable paths, driving you into the side of the road causing a major collision just when you get your speed up. It is also hard, when travelling the tight corners, to turn quickly enough to avoid a side obstacle. The only solution to these difficulties seems to be memorizing the course and slowing down ahead of time. Finally, the included high-score list is not saved to disk and is therefore reset with each playing. I wish companies would not include a high-score option if they are not going to save it to disk. Don't make me go through all the trouble of entering my name if you are not going to save it!

Despite these shortcomings, the conversion was done very effectively and this game will be a valuable addition to any gamer's collection.

Star Wars

Next comes Star Wars by Broderbund, another adaptation of a popular coin-op game. For those who have not seen or played it, the basic theme is based on the first Star Wars movie. You must successfully pilot your agile X-wing fighter in its mission to blow up the dreaded Death Star by shooting a torpedo down its exhaust chute. While the movie had only one Death Star, the game has a limitless number, each of which must be approached and then directly attacked to eliminate threat to the universe.

Each mission begins with the flight through space to the Death Star. Here massive numbers of Imperial Tie fighters try to sneak up on you and blast you out of the sky. After this comes a chance to

clear the laser towers protecting the Death Star from its surface. The final segment involves negotiating the tight confines of the trench that surrounds the Death Star, ending at the exhaust port itself. If you can successfully launch a torpedo down the port, you will be rewarded by a brief animation of the Death Star's explosion and then advance to the next level. Failure to hit the port requires replay of the trench sequence, so accuracy at the end is vital.

During each stage, your opponents will be strewing a steady stream of fireballs in your direction which, if not shot with your high-power laser, can quickly destroy your shield and craft. As your shield is depleted it changes color, and any hits after it is destroyed will destroy your craft and end your mission.

You can control your fighter using either the joystick or the mouse. Herein lies one of the games major shortcomings. While the mouse works very well for the first two stages, it can be extremely difficult to maneuver through the higher level trench segments while destroying oncoming fireballs. This is a problem because moving the cursor to hit a fireball often causes the fighter to head in an undesired direction and into an obstruction.

The graphics in Star Wars, while nice when the game was originally released to the arcades, do not really compare with current standards. All the graphics are colored line segments similar to those used by many of the earlier vector-based displays. These graphics are clear and easy to follow, but the game was almost too faithful to the original design, making the game fall short of what is possible.

The game might still be worthwhile, despite the limitations of its graphics, if the controls worked better. As it is, I found myself navigating through the first two sections, only to die quickly while attempting a complicated trench section. I can only recommend this game to those fans who spent hours playing Star Wars at the arcade and just cannot wait to get back to destroying Death Star after Death Star.

Platoon

The third and final arcade game is Platoon by Data East. Based on the movie of the same name, the game attempts to instill in the player many of the movie's themes. As the squad leader, you must lead your five men through five different stages in an attempt to eliminate the Viet Cong threat.

The joystick is used to maneuver your character around the screen, with the fire button being used to fire your weapon. Only a limited number of rounds are available though, so these shots must be used with some restraint. Play continues until the end of the sixth stage is reached or the squad's integrity is lost. Each man can take up to four hits before dying. The squad's overall morale also decreases with each hit until unit integrity is completely lost and the game is over.

The graphics look like direct translations from an 8-bit and fall far short of what is available on the Amiga. This is too bad since the game is highly graphic and could have greatly benefited from good graphics.

The other main problem with the game is its play system. While the current soldier is armed with both a rifle and a supply of grenades, fire can only go from left to right. This can be a problem when enemies suddenly drop down on your head or pop up through the ground at your feet. While grenades can hit the ground-level enemies, they only fire a fixed distance, and if you are not at this distance precisely when the enemy pops up, you cannot hit him. Hard-to-see tripwires can also take the life of any soldier unfortunate enough to step on them.

It would seem that the designers followed the advice on the back of their box: "The first casualty of War is innocence", and "At times, the odds may seem insurmountable. But don't think about winning—to survive is enough." Gameplay is next to impossible. Sudden enemy appearance in the jungle sequences make completing this phase a distant hope. While the rulebook suggests making a map of the forest, this is impossible since no pause feature is available. Only by memorizing the layout can you ever hope to reach the higher levels.

Even after many hours in the Jungle phase, I was unable to find my way out of the jungle before my squad fell apart and I had to restart. Death came so fast that, to paraphrase the box: "The first causality of playing this game will be your interest in it." While I do not always complete every arcade game I attempt, I can usually advance several levels after a few hours of play. But this game deprived me even of the simple joy of reaching the second phase.

Because of the fatal flaw in the gameplay I could not recommend this game to anyone. Many other action games exist for those desiring it.

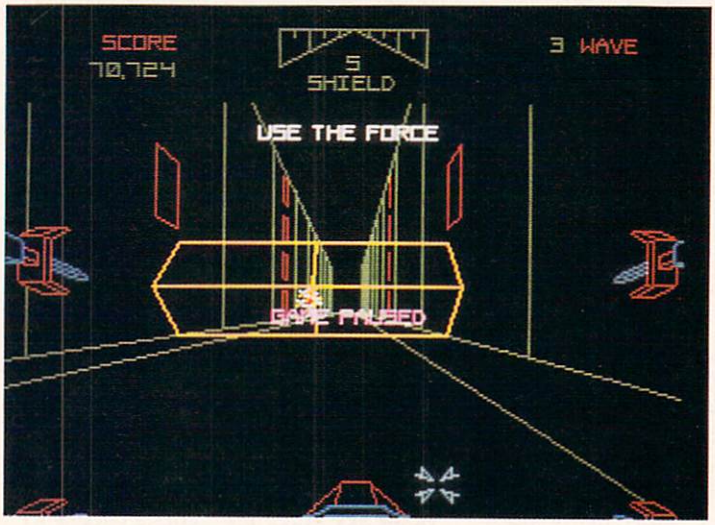


Figure Two

Star Wars May the force be with you

Battleship

The next game on the list should be known by almost everybody. Milton Bradley's popular Battleship game has been brought to the Amiga by Epyx.

Battleship is very true to its namesake. Two players each place five ships on a 20 x 20 square grid. Each side has a force of six ships, ranging in size from the mighty six-square battleship down to the lowly two-square torpedo boat. Each side takes turns firing salvos of shots at the opponent's grid, guessing where the opposing ships are located. As ships are sunk, the number of shots available to that side are reduced, with the winner being the one to first eliminate all opposing ships.

A few nice features were added to the game to enhance gameplay. The mouse is used to both place ships and to choose where on the grid to fire. After all shots have been placed, a short animated sequence of the view over the gun tubes of a battleship is shown, with each shot flying out sequentially. Any hits explode on the affected ship, and accumulated damage is indicated with a sunken ship being eliminated from view. Each game ends with a "sail-by" of the winning fleet across the screen.

The computer can fill in for either side and can even play demo games to give the player a better feel of the action. Obviously replay value is limited. Because the game is so true to the theme, only dedicated players will find lots of enjoyment from Battleship. Most people will find their money spent much more effectively on other games.

Reel Fish'n

Finally this month is a very unique game. Reel Fish'n by Interstel covers that popular sport of—you guessed it—bass fishing. Definitely alone in its field, Reel Fish'n produces an interesting game from a rather odd sport.

In Reel Fish'n you play a small business owner and bass fisherman attempting to perfect your skills at this active sport. Being self-employed, each week you can make the decision of how many days to work and how many to fish. While fishing every day might be nice, working provides the income necessary to finance your sport. To aid you in your selection is a chart of the predicted weather conditions for Monday through Saturday. As can be expected, this forecast is less accurate toward the end of the week. Weather conditions greatly affect how the fish bite, so this choice must be made carefully.

Each fishing day begins bright and early. The radio must be checked first for the day's forecast. Then the phone is used to call the local baitshop to determine the best prospects for the day. Each lake costs a different amount to fish, usually based on its distance from your home. After a lake has been selected, it is on to the tackle shop. Here the lures and other stock of your trade can be purchased, including elaborate depth finders and even hi-tech boats. Until you save up enough money from tournament winnings though, you will not be able to own a boat of your own and will instead rent one of the available boats for the day. The tackle shop can be skipped if you do not need any additional equipment.

Next it is on to the lake. Your fishing day begins at 7 am and continues until the sun goes down at 9 pm. It is here that the real action occurs. After piloting your boat around to a suitable spot on the lake, you sit back and begin casting. Each cast takes 10 minutes, so you must pick your areas carefully to make maximum use of your time. As with real fishing, you must not only cast the line, but entice a fish to strike it while you reel it in, properly set the hook, and then reel the fish into your net.

Once you have gained sufficient skill at fishing and after saving up enough money, you can enter one of the three-day tournaments in a bid for big prizes. While the entrance fees are high ($500), the prizes are worth it for the successful angler ($3000-5000). Competition is fierce, so only attempt this after you can regularly haul in many large fish during normal sessions.

The graphics, while not spectacular, are sufficient for play and add to the feel of the game. The sky even darkens if you are out on the lake during a storm. The mouse is used to control all aspects of gameplay and works well after the peculiarities of the fishing sequence are mastered. A substantial rulebook is also included that not only fully explains gameplay but also provides a fair amount of background on the sport of bass fishing.

Reel Fish'n definitely wins an award for originality. This is not a typical strategy game and will obviously not appeal to everyone, but for those who are open to something different, Reel Fish'n might be just the choice to provide many hours of stimulating entertainment. Now if I could just make enough to buy my own boat...

•AC•

Sega
distributed by *Mindscape, Inc.*
3444 Dundee Rd.
Northbrook, Il 60062
Barrie Ont. Canada L4M 5R3
(705) 737-5998
Out Run, $49.95
(Inquiry #202)

Broderbund Software, Inc.
17 Paul Drive
San Rafael, CA 94903
(603) 644-3360
Star Wars, $39.95
(Inquiry #203)

Data East USA, Inc.
470 Needles Dr.
San Jose, CA 95112
Platoon, $44.95
(Inquiry #204)

Epyx
600 Galveston Dr.
P.O. Box 8020
Redwood City, Ca 94063
(415) 366-0606
Battleship, $29.95
(Inquiry #205)

Interstel
distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(800) 345-8525
in CA, (800) 562-1112
Reel Fish'n
(Inquiry #206)

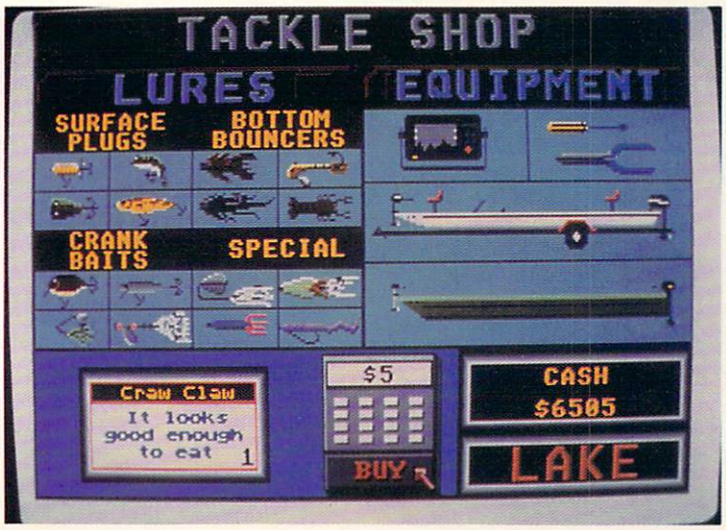


Figure Three

A stop at the Tackle shop in Reel Fish'n

HARDCopy *the games page*

By M. J. Bernier

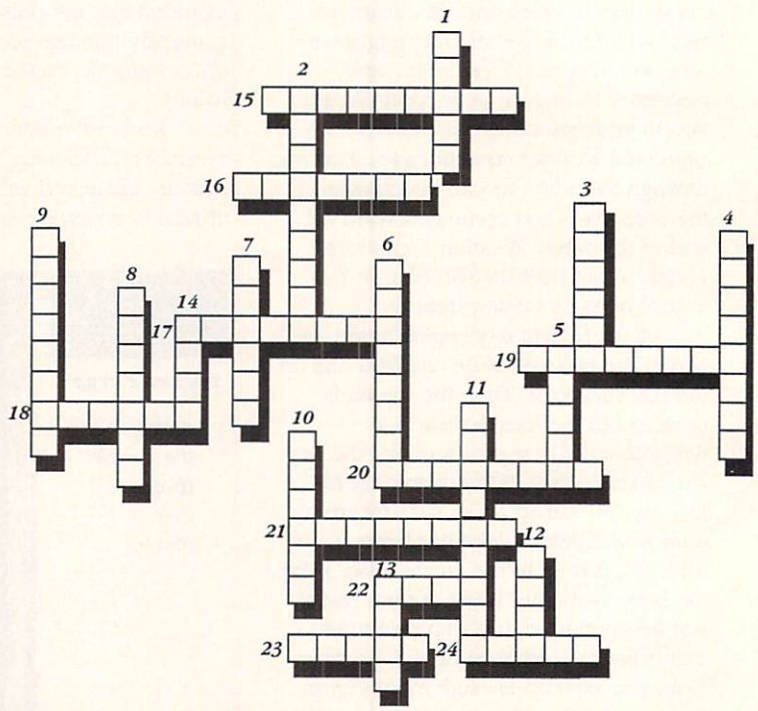
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Aaargh
Arazok
Baal
Breach
Castlevania
Contra
Deja Vu
Dr Xes
EbonStar
Enchanter
Faery Tale
Freeway Massacre
Ganymed
Gridiron
Hex
Harrier
Jinxter
JUG
Kampfgruppe
Kingdoms of England
Leisure Suit Larry
Leviathan
Maniax
Moonmist
Nord
One On One
Out Run
Pub Games
Puppy Love
Q Ball
Ringside
Robocop
Space Spuds
SPOC
Targis
Trivia
Wayne Gretzky
Zoom
Zork

Crossmania

1. _____ Bomb, destructive weapon in "DataStorm"
2. Subcompany that wrote "Bard's Tale" and "BattleChess"
3. Character's "goal" class in "Ultima IV"
4. Mines on the moon in "Rocket Ranger"
5. Good guy in "Barbarian"
6. Type of destroyer in "Destroyer"
7. Brother in "Faerytale Adventure"
8. Name of the land in "Ultima III"
9. Name of the land in "The Pawn"
10. The trap with but one escape in "Bard's Tale II"
11. Bad guy in "Phantasie III"
12. Princess's picture at the end of the first level dungeon in the "Bard's tale II"
13. Codeword for the dreamspell in "Bardstale II"
14. Name of the paddle in "Arkanoid"
15. Makers of "Shadowgate"
16. A bad guy in "Starfleet I"
17. Garrison's Wizard, Warrior, Elf, Dwarf, and _____
18. Your ship in "Starglider II"
19. Ship in "Sex Vixens", Big _____
20. Character in "Boulderdash", also stars in his own games
21. The professor in "Cosmic Relief"
22. "Better Dead Than Alien"'s Brad ____
23. You need nine of these to complete "Phantasie"
24. Item that calls the turtle in "Faerytale Adventure"



full credit is given to the author, Paul Costa

PD Serendipity

Insight into the World of Freely Redisributable Software for the Amiga™

By
Mike Morrison

Fred Fish Disk 211

AmigaWave
Another animation by Allen Hasting. This one shows a pool with a marble walk way around it. The word 'Amiga' floats above the pool and the reflection is shown in the water, along with all the appropriate ripples. Author: Alan Hastings.

Esperanto
A keymap modification that allows the user to type in either Welsh or Esperanto. Author: Glyn Gowing.

Image-Ed
An update to the release on Fred Fish #204 fixing a few bugs. Shareware program. Version 1.9, binary only. Author: Jonathan Potter.

SignFont
A keymap that allows the user to type in American Sign Language. Author: Glyn Gowing.

VirusControl
A program to help you with the battle against viruses. It checks disks when inserted, shows bootblock, checks system vectors, protects from link viruses, and more. Version 1.3 including assembly language source. Author: Pius Nippgen.

Fred Fish Disk 212

Alice
A 1988 Badge Killer Demo Contest (BKDC) entry. Shows a face of a woman and a magnifying glass that has extremely good magnification. Author: Carey T. Pelto

DiskSalv
An update to the version on Fred Fish #177. Supports both Amiga Standard File System and Fast File System. Recreates on another device as much information as it can from the original device. Binary only. Author: Dave Haynie.

DogsWorld
A 1988 BKDC entry. Shows the Earth rotating with a dog running on it as it spins. Author: Charles Voner.

Fred Fish Disk 213

Cucug
A 1988 BKDC entry. Shows the groups logo rotating around a large silver ball. Author: Ed Serbe.

Icons
Around 300 icons in eight colors. A program is included to change your workbench from 4 to 8 colors. The icons where created with Dpaint II and Icon Gen. Author: Wolf-Peter Dehnick

Fred Fish Disk 214

ArcPrep
Helps prepare files or directories to be archived. Allows you to scan through directories and handle long filenames. Version 2.1. Author: Garry Glendown.

MandelVroom
A complete Mandelbrot/Julia-curve generating program. Has a full list of features and is written in assembly language for speed. Requires 1 meg or more to run. This is the source to version 2.0 available of Fred Fish #78. A compiled binary, along with help files and example images is on Fred Fish #215. Author: Kevin Clauge.

MemDiag
A memory diagnostic program that keeps the system's free memory list free from addresses that can produce memory errors. Version 1.1, include source. Author: Fabbian Dufoe.

RunBack
An update to the versions on Fred Fish #73 and #152. Uses Gunnar Nordmark's NULL: device instead of the NIL: device which caused errors. Includes source. Authors: Rob Peck, Daniel Barrett, Tim Maffett.

SmartIcon
Allows you to iconify Intuition objects. Adds another gadget to windows that when clicked on turns the window into an icon. Version 1.0 is currently is limited to windows. This is the same as the program on Fred Fish #134, but includes source, shareware. Author: Gauthier Groult.

Fred Fish Disk 215

MandelVroom
A full featured Mandelbrot/Julia-curve generating program. Very nice. As described above on Fred Fish #214, which contains the source for the older version. Author: Kevun Claque.

Fred Fish Disk 216

BackDrop
Allows you to define a pattern for your Workbench screen. Includes source. Author: Eddy Carroll.

C64Emul
Makes your Amiga look like a C-64. Author: Eddy Carroll.

Cload
A program that generates cloud-like fractals. Binary only. Author: Mike Hall.

PrtSpool
A print spooler that waits for data that needs to be printed. The program adds line numbering and page headers. Binary only. Author: Daniel Barrens.

VirusX
A new version of VirusX that checks for eight more viruses. Version 3.20, includes source. Author: Steve Tibbet.

Wanderer
A game with graphics and sound based on games such as Boulderdash and Repton. Has a built in editor for extending the game by adding screens. Author: Steve Shipway and others. Amiga port by Alan Bland.

Fred Fish Disk 217

AntiCBS
A Leo Schwab animation made to protest a certain network's coverage of the Hacker's Conference. Take a look. Author: Leo Schwab.

Echo
A replacement program for the echo command. Has features that allow you to clear the screen, place the curser, and set text style/color. Includes source. Author: Garry Glendown.

InstallBeep
This program replaces the DisplayBeep function so that you can use an IFF 8SVX sound sample instead. PlayBeep runs as a background task so things don't get slowed down. Version 1.1, binary only. Author: Tim Friest and Don Withey.

SnipIt
A program that runs in the background that allows you to cut and paste from any source as though you typed it from the keyboard. Then later you can paste the test where you want it. Version 1.2, includes source. Author: Scott Evernden.

SonixPeek
A utility that allows you to scan directories for Aegis Sonix scores. The program then creates a list of instruments needed by each score so you know which instruments are needed. Includes source. Author: Eddy Carroll.

Stevie
A PD version of the UNIX editor 'vi'. Supports window sizing,arrow keys, and help key. This is an update to the program on Fred Fish #197. Includes source. Author: Various, Amiga work by G.R. (Fred) Walter.

Fred Fish Disk 118

EdLib
This is a library of functions for Manx. This is version 1.1, an update to Fred Fish #183. Author: Edwin Hoogerbeets and C-functions from other authors.

Mandel
Another mandlebrot generator program. This is version 1.3 an update to the program on Fred Fish #111. The new version includes an ARexx hook and more. Includes source. Author: Olaf Seibert.

Maze
This program lets you create mazes from simple one level, to complex three levels. Version 1.2, includes source. Author: Todd Lewis.

PcPatch
Patches for PCCOpy and PCFormat to allow reading, writing and formatting of any kind of MS-DOS style disk, including 720K 3.5" diskettes. This is an update to the program on Fred Fish #163, binary only. Author: Werner Guenther.

Scanner
Generates commented C code of all Intuition structures in memory. The program starts at IntuitionBase and follows all pointers storing all the structure to the standard output when done. Version 1.0, includes source. Author: Stefan Parmark.

Worm
An Amiga version of the 'worms' program. You can specify the length, size, and number of worms. Includes source. Author: Brad Taylor, Amiga port by Chuck McManis.

Fred Fish Disk 219

DeepSky
A database with information on 10,368 non-stellar objects! The database is distributed in zoo format an extracts to about 1.2 MB. Version 5.0. Auhtor: Saguaro Astronomy Club.

Mv
A UNIX like mv/cp/rm program. You can move, copy, or remove files. Supports Arp style wildcards. Version 1.1, includes source. Author: Edwin Hoogerbeets.



SPOC

Your Amiga Becomes SPOC — Special Programs & Operations Computer! Your family can interact and compete with SPOC in over 35 highly entertaining ways. Contains educational and demo sections to show off your Amiga. Your family will run this disk more than all your other entertainment software combined or your money back.

You also get a disk from SPOCPD, our best of public domain —great programs, reworked to run smoothly and easily. Both disks come with plain label and compact code — you do not pay for copy protection and fancy packaging. Why pay $30.00-$60.00 for one program when you can obtain a complete entertainment library for only $25.00 to:

SPOC
Box 299
Kiowa, OK 74553

Circle 128 on Reader Service card.

Fred Fish Disk 220

Dnet
This program allows you to connect an Amiga and a UNIX (BSD4.3). Achieves better than 95% throughput on file transfers. This is version 2.0 and replaces the program on Fred Fish #145, includes source. Author: Matt Dillon.

•AC•

Correction!

The Digi-View Gold review in June's AC (vol 4.6, p.25) neglected to mention improvements that were made to the product from its predecessor, Digi-View 3.0.

According to Jae Emmerson of NewTek, Digi-View Gold contains moderate changes in the software found in Digi-View 3.0. These changes, although not apparent to the user, provide better support for the A500 and A2000.

Digi-View Gold was further updated by providing new hardware to fit Amiga 500 and Amiga 2000 ports. (Previous versions, based on the Amiga 1000, required adapter cables or plugs to fit the A500 or A2000 computers.) NewTek now recommends the use of flourescent lighting for better color reproduction with Digi-View Gold.

AMIGA

Entertainment Software

AMIGA GAME	DESCRIPTION	PRICE	COMPANY
4 in one!	Slotcars, CircuitMania, ShufflePuzzle and Follow That Tune.	$29.95	Polyglot Software
4 x 4 Off Road Racing	Choose your own vehicle.	$39.95	EPYX
4th & Inches	Energy levels decrease according to plays.	$44.95	Accolade
4th & Inches Team Construction	Used with 4th & Inches, assemble your own teams.	$14.95	Accolade
A Mind Forever Voyaging	Journey into the future.	$14.95	Infocom
Aaargh	3-D, Cyclops or Godzilla on a quest for the Golden Dragon's egg.	$34.99	Electronic Arts
Action Fighter	Start on a motorcycle, transform into a supercharged aircraft.	$39.95	Mindscape, Inc.
Adv. D&D: Heroes of the Lance	Enter into the ruins of the temple Xak, battle for the magic key.	$39.95	Electronic Arts
Adventure Construction Set	Build your own graphic and text adventure.	$19.95	Electronic Arts
Age of Sail	Relive 17th-19th century tactical naval battles.	$39.95	Conflict Recreations, Inc.
Airball	The Evil Wizard has turned you into an Airball—with a slow airleak.	$39.95	Microdeal
Ajax	Combat with jet fighters, tanks and ships,	$39.95	Konami Inc.
Alien Fires-2199 A.D.	Seek out a time machine that you must destroy.	$39.95	Electronic Arts
Alien Syndrome	Rescue comrades trapped inside an alien-infested genetic laboratory.	$49.95	Mindscape
Alternate Reality: The City	Explore The City, fully populated with new creatures.	$39.95	Electronic Arts
Amegas	40-screen game.	$34.95	DigiTek, Inc.
Andromeda Mission	You are elected to save the human race.	$39.95	American Software Distributers
Annals of Rome	You are the leader of the ancient Roman senate.	$34.95	Electronic Arts
Aquaventura	Multi-level arcade game	$39.95	Psygnosis Ltd.
Arazok's Tomb	You're the reporter, investigating an ancient underground city.	$39.95	Aegis Development, Inc.
Archon	Chess-like strategy.	$19.95	Electronic Arts
Archon II: Adept	New characters and different objects.	$19.95	Electronic Arts
Arcticfox	Defend the South Pole from alien invaders, 3-D landscapes.	$39.95	Electronic Arts
Arena	Track and field events.	$39.95	Psygnosis
ARKANOID	Brick and paddle arcade game, 66 levels of play.	$29.95	Discovery Software Int'l
Art of Chess	Play with the Grand Masters.	$24.95	Anco Software USA Inc.
Aunt Arctic Adventure	Help Charlie the Chimp rescue his aunt, 50 levels.	$39.95	Mindware International
Aussie Joker Poker	Computerized card game up to 90 players.	$49.95	Mindscape Inc.
Autoduel	An adaptation of Car Wars.	$39.95	Broderbund Software, Inc.
Awesome Arcade Action Pack	Sidewinder, Captain Zod, and Blasta Ball.	$49.99	Electronic Arts
BAAL	You are the leader of the Time Warriors.	N/A	Psygnosis Ltd.
Bad Dudes	Intense street fighting action game.	$44.95	Accolade
Balance of Power	Nuclear-age pitting the U.S. against U.S.S.R.	$49.95	Mindscape Inc.
Ballistix	Score more goals than your opponent.	$34.95	Psygnosis Limited
Ballyhoo	Rescue the circus owner's kidnapped daughter.	$14.95	Infocom
Barbarian	Hegor the famous dragon-slaying, monster-mangling Barbarian.	$39.95	Psygnosis Ltd.
Battle Chess	Over 30,000 moves, ten different levels of play.	$49.95	Interplay Productions
BattleDroidz	3D,gladiator games of ancient earth.	$34.95	Electronic Arts
Battleship	Based on the board game.	$29.95	EPYX
Better Dead than Alien	Battle wave after wave of slimy alien creatures.	$34.95	Discovery Software
Beyond Zork	Design your own character.	$49.95	Infocom
Bingo Parlor	Talking bingo game for 1 to 10 players.	$19.95	Silver Software
Black Lamp	Confront the fire-breathing dragon for the Enchanted Black Lamp.	$24.95	Rainbird Software
Black Shadow	Outgun the enemy and bomb key installations.	$34.95	Scorpion
Blackjack Academy	Blackjack dollar amounts up to $9999.00.	$39.95	MicroIllusions
Blitzkrieg at the Ardennes	World War II battle.	$52.95	Command Simulations
Block Buster	Knock down barriers and catch falling tokens, 80 levels.	$39.95	Mindscape
Blood Money	Four alien safari missions.	$49.95	Psygnosis Limited
Bobo	Helping Bobo plan his escape.	$34.95	Antic Software
Bomb Busters	Defuse bombs through 100 levels of play.	$29.95	ReadySoft, Inc.
Boot Camp	Firing range, chin ups and arm wrestling, iron man race.	$39.95	Konami Inc.
Bowling	Player uses the mouse to throw the ball.	$19.95	Silver Software
Breach	Intelligent opponents, multi-level combat areas.	$39.95	Omnitrend Software Inc.
Bride of the Robot	The further adventures of Captain Brad Stallion.	$39.95	Free Spirit Software, Inc.
Bridge 5.0	A complete bridge playing simulation.	$34.95	Artworx
British Open Courses	Works with Accolade's MEAN 18,five different courses.	$20.00	Moonlight Development
Bubble Bobble	Battle battalions of bullies by blowing and busting billions of bubbles.	$34.95	Taito Software Inc.

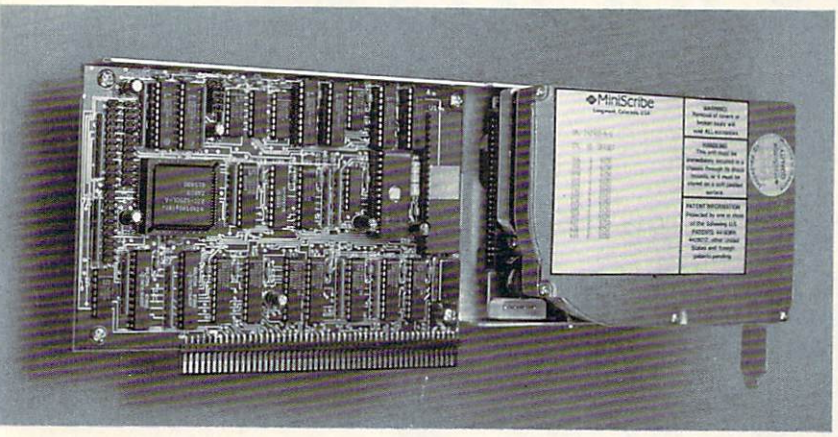
AMIGA GAME	DESCRIPTION	PRICE	COMPANY
Bubble Ghost	Guide a bubble through 36 rooms, catacombs, obstacles, and traps.	$34.95	Accolade
Bureaucracy	Get your bank to acknowledge your change-of-address form.	$14.95	Infocom
California Games	Surf, skateboard, roller-skate, and BMX race all through California.	$39.95	EPYX
Capone	Chicago's 1920s, use your machine gun to beat the gangsters.	$39.95	Actionware
Captain Blood	Captain Blood's clones must be destroyed before they drain his energy.	$49.95	Mindscape
Captain Fizz Meets The Blaster-Trons	20 compulsive levels,no shortage of alien blasting	$29.95	Psygnosis Limited
Carlos Monte's 7-Card Nopeekie	Poker-style casino game.	$19.95	Erisian Software Products
Carlos Monte's Blackjack/Solitaire	Blackjack or solo a round of solitaire.	$29.95	Erisian Software Products
Carlos Monte's High-Rolling Craps	Carlos Monte full craps rules and casino options.	$19.95	Erisian Software Products
Carrier Command	High Tech combat simulation to capture over 60 islands.	$44.95	Rainbird Software
Casino Fever	Craps, roulette, blackjack and poker.	$39.95	Ethos Development Co.
Castlevania	Go up against Count Dracula as he goes for your jugular.	$39.95	Konami Inc.
Centerfold Squares	Digitized graphics, uncover strategically positioned squares.	$29.95	Artworx
CFL	450 fictional players for use with Gridiron.	$14.95 ea	Beta Software
Charon 5	5400 full-color screens spread throughout 11 levels.	$34.95	Mindware International
Chessmate	3-D graphics and varied skill levels.	$29.95	Dark Horse
Chrono-Quest	Suspected of your father's murder, he has escaped into the future.	$49.95	Psygnosis Ltd.
City Defense	Defend cities from outer-space laser attacks.	$19.95	Constellation Software
Classic American Courses	Works with Accolade's MEAN 18, five different courses.	$20.00	Moonlight Development
Clever & Smart	Join the fun with bumbling detective characters.	$34.95	DigiTek
Colossus Chess	Four different sets of chess pieces.	$34.95	Artworx
Combat Course	Push-ups and hand-to hand combat.	$39.95	Mindscape, Inc.
Combat Zone	Enemy forces on American soil,blast apart waves of enemy attacks!	$14.99	Keypunch Software
Computer Scrabble	Battle wits & challenge the computer, 12,000 to 20,000 word dictionary.	$39.95	Electronic Arts
Contra	If you survive, the Earth survives.	$39.95	Konami Inc.
Conversation With a Computer	Doubles as a program guide, includes checker program.	$34.50	Jenday Software
Corruption	Test your skill at manipulating characters and extracting information.	$44.95	Rainbird Software
Cosmic Bouncer	Bounce and dodge through more than 20 levels of action & surprises.	$29.95	ReadySoft, Inc.
Cosmic Relief	Direct one of five explorers along a quest to find Earth's only hope.	$34.95	Electronic Arts
Craps Academy	Animated dice with scrolling table.	$39.95	MicroIllusions
Crash Garrett	Comic adventure with speech bubbles and voice.	$39.95	Antic Software
Crazy Cars	6 tracks cover the U.S, Mercedes, Lamborghini Countach, & Ferrari.	$39.95	Titus Software Corporation
Creature	Use your laser gun & quick thinking to blast the enemy & return home.	$39.95	Actionware
Cross-Links	Word find games allow players to build their own games.	$29.95	Poco Loco
Crystal Hammer	Breakout game with 30 levels of play.	$19.95ea	Constellation Software
CST Data Disk 1,2,3,4	Additional data disks for Uncle D's ConSOUNDtration.	$24.95	AlohaFonts
CubeMaster	Strategy shooting game with 100 levels.	$24.95	ASDG Inc.
Cutthroats	Salvage a shipwreck's sunken treasure.	$14.95	Infocom
Dark Castle	Defeat the Black Knight in the Castle of Doom.	$44.95	Three Sixty
Datastorm	Your ship fights its way through dangers and aliens.	$39.95	Visionary Design Tech. Inc.
Deadline	Whodunnit murder with 6 suspects and a 12-hour time limit.	$9.95	Infocom
Death Sword	Fight to the death for Princess Mariana.	$39.95	EPYX
Defcon-5	Strategy is the key to survival, control surveilence systems	$39.95	Cosmi Corp.
Defender of the Crown	Lead the Saxon knights into battle and win the Crown of England.	$49.95	Mindscape Inc.
Deja Vu: A Nightmare Comes True	Solve the murder, and regain your memory.	$49.95	Mindscape Inc.
Deja Vu II: Lost in Las Vegas	Select from a multitude of clues that may help save your neck.	$49.95	Mindscape, Inc.
Destroyer	World War II in the Pacific.	$39.95	EPYX
Diablo	Keep the ball rolling by laying the tracks down in front of it.	$29.95	Classic Future
Dinowars	Two opposing armies of the best known dinosaurs.	$39.95	DigiTek Software
Distant Armies	10 forms of chess,2 and 3D views	$44.95	Eagle Tree Software
Dominoes	Classic board game with 3-D graphics.	$24.95	Polyglot Software
DONDRA—A New Beginning	Find the Crystal Prism of Heheutotol.	N/A	Spectrum Holobyte
Double Dragon	Help pursue the gang that has kidnapped Billy's girlfriend.	$39.99	Electronic Arts
Double Dribble	5 on 5, the clock is ticking; the coach is screaming.	$39.95	Konami Inc.
Downhill Challenge	Compete in downhill, slalom, giant slalom and jumping events.	$29.95	Broderbund Software, Inc.
Dr. Xes	Discuss your mental health and well-being.	$39.95	Finally Technologies
Dragon's Lair	Rescue Princess Daphne from the evil Singe the Dragon.	$59.95	ReadySoft, Inc.
Dream Zone	A mad scientist's elixir has turned your dream world into a reality.	$49.95	Baudville
Dungeon Construction	Create new labyrinths, scenarios, monsters, treasures, and magic items.	$39.95	MicroIllusions
Dungeon Master	Real-time dungeon exploration with 3D view.	$39.95	FTL Games
Dungeon Quest	Follow your journey through dark castles and forests.	$49.95	Image Tech
Earl Weaver Baseball	Challenges your skill as a batter, pitcher, fielder, and manager.	$49.95	Electronic Arts
Earl Weaver Baseball Data Disk	Statistics from 1986 major-league teams.	$19.95	Electronic Arts
EbonStar	Destroy competitors by hurling them into the synthetic black hole.	$34.95	MicroIllusions
Echelon	Puts you in control of the C104 and in the heart of the action.	$44.95	Access Software
Elite	How you aquire the needed skills is up to you.	$34.95	Rainbird Software
Emerald Mine	Collect jewels, avoid obstacles, and beat the clock.	$19.95	Constellation Software
Empire by Interstel	Stop the Krellans from total domination of alliance airspace.	$49.95	Electronic Arts
Enchanter	You are a novice magician in a world of wizards and spells.	$14.95	Infocom
Enchanter Trilogy	Enchanter, Sorcerer, and Spellbreaker all in one package.	$29.85	Infocom
Enlightenment	Summon your master magician & elementals to aid you in your quest.	$24.95	Rainbird Software

AMIGA GAME	DESCRIPTION	PRICE	COMPANY
Extensor	3D graphics and sound on Mars.	$34.95	DigiTek,Inc.
F/A-18 Interceptor	Six combat missions, free flight, and a training mission.	$49.95	Electronic Arts
Face Off	Master the skills of staying on the ice and dealing with other players.	$24.95	Anco Software USA Inc.
Faery Tale Adventure	3 brothers on a quest to save the land of Holm, 3D perspective.	$49.95	MicroIllusions
Falcon	F-16 simulation, four cockpit views.	$49.95	Spectrum Holobyte
Famous Courses Disk Volume #1	Play the world's best golf courses, requires World Class Leaderboard.	$19.95	Access Software, Inc.
Famous Courses Volume II	More golf course challenges for owners of Mean 18.	$19.95	Accolade
Famous European Courses	Works with Accolade's MEAN 18, five different courses.	$20.00	Moonlight Development
Fast Break	Three on three basketball and design your own plays.	$44.95	Accolade
Ferrari Formula One Grand Prix	Compete against seven different drivers on 16 tracks.	$49.95	Electronic Arts
Feud	Take the part of a feuding medieval wizard & slug it out, spell for spell.	$19.99	Mastertronic Int'l
Final Assault	Select backpack supplies from over 50 items.	$39.95	EPYX
Final Mission	Dig and climb your way through 350 different levels.	$34.95	DigiTek Inc.
Fire and Forget	V-16 triple turbo & four-wheel drive speed you through enemy terrain.	$39.95	Titus Software Corporation
Fire Power	Arcade-style. three tanks to choose from.	$24.95	MicroIllusions
Fire Zone	21st century, behind the wheel of a high-powered combat vehicle.	$34.95	Electronic Arts
First Expedition	Enter an unknown ocean world, recover the 3 sun spheres.	$49.95	Electronic Arts
Flight Path737	Learn to fly the 737. From solo flights to your international license.	$24.95	Anco Software USA Inc.
Flight Simulator II	Over 120 airports, 5 scenery areas. Full instrumentation, many features.	$49.95	subLOGIC Corporation
FootMan	Life-like sound, two different games.	$39.99	Incognito Software
Fortress Underground	Search and destroy an undergroud enemy power station (640-screens).	$19.95	Constellation Software
Foundation's Waste	Use your stolen aircraft to escape from the evil planet.	$34.95	DigiTek Inc.
Freeway Massacre	You play the Freeway Vigilante on the California Freeway.	$39.95	Teknoware
Fright Night	You're Jerry Dandridge, with 12 hours to bite everyone in the house.	$39.95	Microdeal
Frostbyte	Help Hickey the Kreezer rescue his friends from the crater.	$29.95	StarSoft Development
Galactic Conqueror	Stop the invasion, join a training mission to increase your skills.	$44.95	Titus Software Corp.
Galactic Invasion	Find material to build the ultimate doomsday weapon, 3-D galaxy.	$24.95	MicroIllusions
Ganymed	Fight the enemy hordes on Ganymed and win back your planet.	$29.95	ReadySoft, Inc.
Gauntlet	Dungeons, traps, and treasures.	$49.95	Mindscape Inc.
Gettysburg: The Turning Point	Reenacts the three day Gettysburg Civil War battle.	$59.95	Strategic Simulations
GFL Championship Football	Smash through 60 minutes of hard-hitting football.	$44.95	Mediagenic
Global Commander by DataSoft	In the year 2032, you are responsible for the welfare of the entire UNN.	$39.95	Electronic Arts
Gnome Ranger	Guide Ingrid through this three-part graphics adventure.	$19.95	Constellation Software
GO for the Amiga	Oriental game of strategy, 3D stones, wood or ivory playing board.	$49.95	Infinity Software
Gold of the Realm	Four castles to explore, 320 different scenes.	$39.95	Magnetic Images
Gold Rush by Sierra On-Line	Follow a miner from New York to California.	$39.95	Electronic Arts
Goldrunner	Join in as humankind prepares to leave earth & enter the Golden Age.	$39.95	Microdeal
Goldrunner II	Fly your single seated flyer to the platforms and recover the robots.	$39.95	Microdeal
Grand Prix Circuit	9 computer drivers have unique personalities and characteristics.	$49.95	Accolade
Grand Slam	Paris, Wimbledon, U.S. Open, Australian Open, choice of racquet.	$49.95	Infinity Software
Great Resort Courses	Works with Accolade's MEAN 18, five different courses.	$20.00	Moonlight Development
Grid Start	Drive a six gear Formula 1 race car over six circuits.	$24.95	Anco Software USA Inc.
GRIDIRON!	Devise and call your own plays.	$39.95	Bethesda Softworks
GRIDIRON! 1987 College Data	Data disk for use with Gridiron.	$14.95	Beta Software
Guerrilla War	A hostage rescue game	$44.95	Accolade
Gun Shoot	Shoot 12 different criminals.	$34.95	DigiTek Inc.
HardBall!	Play or manage the team.	$44.95	Accolade
Harpoon	You're a NATO Task Force Commander, against the Soviet fleet.	$44.95	Three-Sixty
Harrier Combat Simulator	Air-to-air and air-to-ground combat of the British Harrier aircraft.	$49.95	Mindscape Inc.
Harrier Mission	Shoot the enemy down with your heat-seeking missile.	$24.95	Anco Software USA Inc.
Head Coach 1.0	Results derived from statistical probabilities.	$49.95	MicroSearch Inc.
Head Coach 2.0	Great for learning coaching strategy.	$49.95	MicroSearch Inc.
Heavy Metal Modern Land Combat	Starts as a second lieutenant and move up through the ranks.	$44.95	Access Software
Hex	Board of hexagons, characters move smoothly across the screen.	$39.95	Mark of the Unicorn
Highway Hawks	For experienced drivers only!	$34.95	Anco Software USA Inc.
Hitchhiker's Guide to the Galaxy	Escape Earth & travel through the universe in search of..well, whatever.	$14.95	Infocom
Hits Disk	Goldrunner, Slaygon, Jupiter Probe, & Karate Kid Part II.	$34.95	Microdeal
Hole-in-One Extra Course Disk	Three extra courses designed for Hole-in-One Miniature Golf disks.	$19.95	DigiTek Inc.
Hole-in-One Miniature Golf	72 holes, and many obstacles.	$39.95	DigiTek Inc.
Hollywood Hijinx	Search a lifetime's worth of Hollywood memories in memorabilia.	$14.95	Infocom
Hollywood Poker	Strip poker game with digitized female opponents.	$34.95	DigiTek, Inc.
Hostage	Rescue the embassy hostages, time limits.	$44.95	Mindscape, Inc.
Hybris	Face attacks from land, sea, and air as you earn your silver wings.	$39.95	Discovery Software
Impossible Mission II	Stop a madman seeking to take over the world in the 25th century.	$39.95	EPYX
Indoor Sports	Air hockey, bowling, darts, ping pong. 3D graphics and animation.	$49.95	Mindscape Inc.
Infidel	Searching the Egyptian desert for the great secrets of the lost pyramid.	$9.95	Infocom
Insanity Fight	Battle in space against the evil Death Ship.	$39.95	Microdeal
International Soccer	Control the weather, try a night game with shadows.	$39.95	Microdeal
Into the Eagle's Nest	Break into the Nazi fortress to rescue three Allied saboteurs.	$39.95	Mindscape Inc.
Jack Nicklaus' Greatest 18 Holes of Golf	Play against a computerized Jack Nicklaus.	$49.95	Accolade
Jackal	Face awesome firepower as you try to rescue your brothers-in-arms.	$39.95	Konami Inc.

AMIGA GAME	DESCRIPTION	PRICE	COMPANY
Japan Scenery Disk	Covers detailed scenery from Tokyo to Osaka.	$24.95	subLOGIC Corporation
Jet	Land and sea-based targets and aerial combat scenarios.	$49.95	subLOGIC Corporation
Jigsaw Puzzlemania	Accepts user's graphics for personalized puzzles too.	$29.95	Artworx Software Company,
Jinxter	Set in a jinxed land menaced by the impending death of good fortune.	$44.95	Rainbird Software
Joe Blade	Rescue six world leaders.	$34.95	DigiTek Inc.
JUG	Beware of attacks from the planet you are trying to rescue.	$39.95	Microdeal
Kampfgruppe	Tactical WWII with the weapons from the Russian Front 1941-1945.	$59.95	Strategic Simulations, Inc.
Karate Kid Part II	You must discover the secret of the drum-or die!	$39.95	Microdeal
Karate King	Karate combat game with nine different levels.	$19.95	Constellation Software
Karting Grand Prix	Go-cart racing, players choose tires to fit the weather conditions.	$24.95	Anco Software USA Inc.
Kickstart II	Ride your bike against the computer or a friend and the clock.	$19.99	Mastertronic International
Kikugi	Jump marbles and remove as you go, strategy becomes intricate.	$39.95	Image Tech
Kill or Be Killed	Lead your troops into enemy territory, rescue soldiers and return.	$39.95	Teknoware
King of Chicago	Battle the legendary Capone mob for control of 1930's Chicago.	$49.95	Mindscape Inc.
King's Quest	Outwit a witch, climb a beanstalk, ride an eagle, and battle a dragon.	$49.95	Electronic Arts
King's Quest II: Romancing the Throne	Search for 3 magic keys to an enchanted land, on a magic carpet.	$49.95	Electronic Arts
King's Quest III: To Heir Is Human	Help Gwydion break free of an evil wizard.	$49.95	Electronic Arts
Kingdoms of England	Conquer England by combining strategy with arcade skill.	$49.99	Incognito Software
Land of Legends	As a dungeon master devise traps and tunnels to trap your friends.	$49.95	MicroIllusions
Larry and the Ardies	Avoid the fast-moving Ardies while collecting objects on each level.	$19.95	Constellation Software
Leader Board	Four irons and a driving range for practice.	$44.95	Access Software
Leather Goddesses of Phobos	Save the Earth from domination by the Leather Goddesses.	$14.95	Infocom
Leatherneck	Storm the beach to rescue your buddies held captive.	$39.95	Microdeal
Leisure Suit Larry	in the Land of the Lounge Lizards Singles bars. Adult humor.	$39.95	Electronic Arts
Leisure Suit Larry II:	Looking for Love in Several Wrong Places Adult humor	N/A	Electronic Arts
Leviathan	Fly through three detailed planetscapes and vaporize all enemy ships.	$9.95	Mindscape Inc.
Light Division	Warfare in the Straits of Hormuz, U.S. and Russian/Iranian forces.	$40.00	3W Computer Games Inc.
Lords of the Rising Sun	Battling againt samurai armies.	$49.95	Cinemaware Corp.
Mad Libs	Computer adaptation of the popular word game.	$19.95	Electronic Arts
Major Motion	Race and battle against the dragsters, beware helicopters and more.	$39.95	Microdeal
Manhunter: New York	Report human activities to an Evil Alien takeover.	$49.99	Electronic Arts
Maniax	Reveal superb city landscapes.	$24.95	Anco Software USA Inc.
Marble Madness	6 levels of 3D runway mazes; icefields, pipes, slimes, oozes, & more.	$49.95	Electronic Arts
Master Ninja:	Shadow Warrior of Death Martial arts simulation set in Japan.	$39.95	Electronic Arts
Mean 18	Course Architect lets you design or modify an entire course.	$44.95	Accolade
Mega Pinball	Allows 4 players and 4 screens with hyper sound effects & graphics.	$39.95	Starvision International
Menace	Once you have completed one level, you are thrown into the next.	$29.95	Psygnosis Ltd.
Metal Gear	Only you have the expertise to seek and destroy Metal Gear.	$39.95	Konami Inc.
Mighty Marvel vs. F.O.E.	Give your hero superpowers to combat supervillans.	$49.95	ISM Inc.
Mighty Nerd	Thwart the supervillains, edit powers of the superhero.	$49.95	ISM, Inc.
Mike the Magic Dragon	Held captive in a large castle of ghost, robots, and energy barriers.	$24.95	Anco Software USA Inc.
Mindwalker	You're a physics professor gone mad. Your ego has split four ways.	$49.95	Commodore
Mini-Putt	Three points of view and three types of obstacles provide more variety.	$39.95	Accolade
Mission Elevator	Recover a stolen magic sword, use your martial arts and weapons.	$19.95	Electronic Arts
Moebius: The Orb of Harmony	Animated martial arts with the challenges of fantasy role-playing.	$39.95	Broderbund Software, Inc.
Moonmist	Hunt the phantom and search for treasure in The Tresyllian Castle.	$14.95	Infocom
Murder on the Atlantic	Murder! Investigate 40 suspects, 600 rooms, for 22 mystery clues.	$39.95	Intracorp Inc.
New York Subway	Battle in the subway, save terrified citizens.	$39.95	DigiTek Inc.
NFL DataDisk	Simulate games between NFL teams on GRIDIRON!.	$19.95	Bethesda Softworks
Ninja Mission	Temple of Death, regain the glowing idols stolen from the Princess.	$19.99	Mastertronic International
Nord and Bert Couldn't Make Head or Tail of It	Verbal tricks to complete puzzles in the town of Punster.	$14.95	Infocom
Obliterator	You are the last fighting machine, cripple the alien vessel & destroy it.	$39.95	Psygnosis Ltd.
Obsession	An ancient strategy game with 15 levels of play.	$29.95	Image Tech
Offshore Warrior	Powerful boats battle against the elements and their opponents.	$39.95	Titus Software Corp.
One-On-One	Shoot as accurately as the Birdman. Slam Dunk like the Doctor.	$19.95	Electronic Arts
Oo-Topos	Captured by space pirates while on an important mission. (A1000 only.)	$19.95	Polarware Software
Operation Wolf	Stike back at terrorism.	$39.95	Taito Software Inc.
Operation: Cleanstreets	Rid the city streets of punks by punching, kicking and dodging.	$39.95	Broderbund Software Inc.
Orge by Origin	Contend with a huge cybernetic tank armed and armor plated.	$29.95	Broderbund Software, Inc
Out Run by Sega	Go for the drive of your life!	$49.95	Mindscape
P.O.W.	Rescue P.O.W.s and bring them home.	$39.95	Actionware
Paladin	Animated fantasy combat.	$39.95	Omnitrend Software
Parachutes at Kanev	WWII, Eastern Front, Germans vs. Russians.	$40.00	3W Computer Games Inc.
Persecutors	Navigate your ship through unknown territory.	$19.95	Constellation Software
P.G.A. Championship Courses	Works with Accolade's MEAN 18, five different courses.	$20.00	Moonlight Development
P.G.A. Tour Courses I	Works with Accolade's MEAN 18,five different courses.	$20.00	Moonlight Development
Phantasie	Locate the 9 Rings to battle the Dark Lord's evil minions.	$39.95	Strategic Simulations, Inc.
Phantasie III	Wrath of Nikademus: The final battle against the Dark Lord.	$39.95	Strategic Simulations, Inc.
Phantasm	You're transported to a distant moon where you can save the earth.	$34.95	Scorpion Software
Pioneer Plague	You must stop the probe before it destroys all the planets, & Earth.	$39.95	Antic Publishing
Pirates	Sailing, swordfights, romance and intrique on the high seas.	N/A	MicroProse

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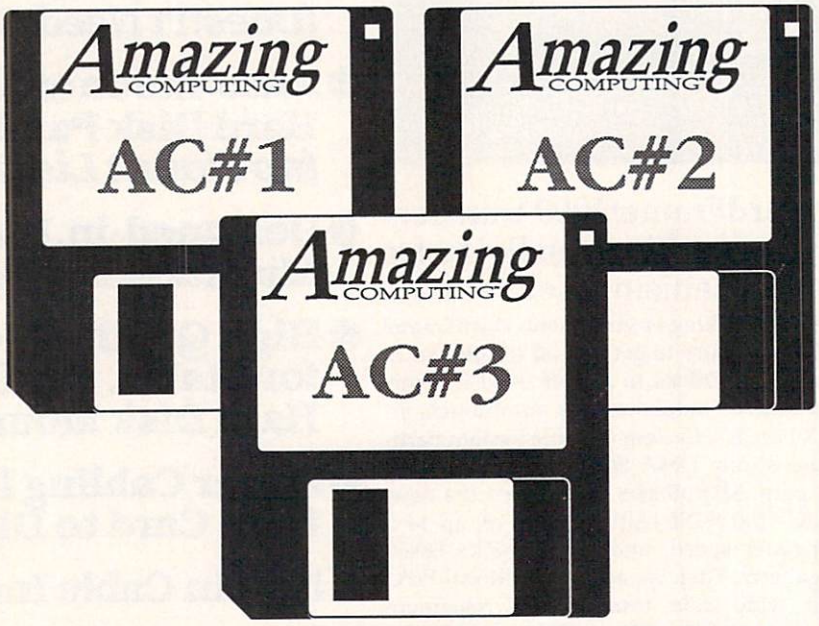
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Amazing on Disk #2 complete source listings from AC 4.4

GetArgs.MSB: Passing arguments to AmigaBASIC from CLI.
Shared Library Assembler Header: Use shared libraries, written in 'C'.
MultiSort: Sorting and intertask communication in Modula-2.
'881 Math Part I: Part one on programming the 68881 Math Coprocessor Chip.

Amazing on Disk #3 complete source listings from AC 4.5 and 4.6

Digitized Sound: A Modula 2 program that plays sound files (AC V4.5).
'881 Math Part II: Part two on programming the 68881. Shows how with fractal drawing program (AC V4.5).
Insta Sound: Tapping the Amiga's sound from AmigaBASIC (AC V 4.5).
MIDI Out: A MIDI drill program written in C that you can add features to *(AC V4.5).*
At Your Request: A program that shows you how to access system requestors from AmigaBASIC *(AC V 4.6).*
Diskless Compiler: See how you can set up a compiler enviroment that doesn't need floppies *(AC V4.6).*

(Order Form on inside rear cover)

AMIGA GAME	DESCRIPTION	PRICE	COMPANY
Planetfall	A lowly deck-swabber jettisoned onto a mysterious deserted planet.	$14.95	Infocom
Platoon	Translation from the hit movie.	$44.95	Accolade
Plundered Hearts	Escape pirates, explosives, reefs and crocodiles.	$14.95	Infocom
Plutos	Defeat swarms of alien defenders.	$29.95	Mindscape Inc.
Poker Solitaire	Play 12 hands of stud poker simultaneously.	N/A	Ethos Development
Police Quest	Crime computer gives court information on suspects.	$49.95	Electronic Arts
Popman	Control a small man who must pop all balloons on each level.	$20.00	David Ashley
Ports of Call	Own and command a cargo ship.	$49.95	Aegis Development Inc.
Power Stix	Fill out the screen with rectangles or squares while avoiding enemies.	$34.95	DigiTek Inc.
Prime Time	Run a TV network, cancel shows, buy shows, do lunch.	$39.95	First Row Software Pub., Inc.
Prison	Penal colony on the planet, Altrax.	$39.95	Actionware Corporation
Pub Games	Try your luck at Darts and Pool.	$34.99	Electronic Arts
Puppy Love	Create routines puppy will perform.	$29.95	Addison-Wesley
Q-Ball	8 pockets, and the ability to rotate the table while making your shot.	$29.95	Mindscape Inc.
QIX	Encounter puzzle after puzzle, best mind game ever.	$39.95	Taito Software Inc.
Questron II	Stop six wicked sorcerers from creating a magic book of evil.	$49.95	Strategic Simulations Inc.
Quintette	Line up five of your stones, or capture five pairs of your opponent's.	$39.95	Miles Computing, Inc.
Quizam!	Destroy 8 alien satellites by answering strange trivia questions.	$34.95	Electronic Arts
Racter	Converse on nearly any topic.	$44.95	Mindscape Inc.
Rastan	Slay deadly dragons and conquer the Castle King.	$39.95	Taito Software Inc.
Reach for the Stars, Third Edition	Become ruler of space empire.	$39.95	Electronic Arts
Realm of the Warlock	Find and free the leaders of the town and defeat the sinister wizard.	N/A	Incognito Software
Rebel Charge At Chickamauga	The Blue and The Grey, recreation of the two-day battle.	N/A	Electronic Arts
Reel Fish'n	Spend a sunny day reeling in fish.	$44.95	Electronic Arts
Renegade	2 A.M. is no time to be alone in the subway.	$34.95	Taito Software Inc.
Return to Atlantis	Find Atlantis, explore over 140,000 locations.	$49.95	Electronic Arts
Ringside	World championship boxing.	$39.95	Microdeal
Road Raider	In a world where rules are non-existent, find the mad menace.	$39.95	Mindscape Inc.
Roadwar 2000	Lead a road gang in the year 2000.	$39.95	Strategic Simulations, Inc.
Roadwar Europa	Lead a road gang to Europe.	$44.95	Strategic Simulations, Inc.
Roadwars by Arcadia	Blast attackers, smash through barricades without a scratch.	$34.99	Electronic Arts
Robbeary	Features a thieving bear loose in the department store.	$24.95	Anco Software USA Inc.
Robocop by Data East USA, Inc.	A blockbuster film translation.	$44.95	Accolade
Rock Challenge	Test your knowledge of rock trivia, questions from the 50's to today.	$39.95	ReadySoft, Inc.
Rocket Ranger	Action, romance, thrills and spills of the old Saturday morning serials.	$49.95	Cinemaware Corp.
Rockford by Arcadia	Archaeological expedition.	$34.99	Electronic Arts
Rogue	26 dangerous levels and one daunting truth: never the same twice.	N/A	EPYX
Romantic Encounters at the Dome	Adult text game, be romantic or reckless, etc.	$39.95	MicroIllusions
Rush 'N Attack	POW's in an enemy camp, defeat choppers & guerrilla attacks.	$39.95	Konami Inc.
S.D.I.	Defend the U.S. against a KGB missile attack.	$49.95	Mindscape Inc.
Santa Paravia and Fiumaccio	1 to 6 players rule a city-state in 13th century Italy.	$29.95	StarSoft Development
Scary Mutant Space Aliens from Mars	A comic twist and humorous but challenging puzzles.	$39.95	ReadySoft, Inc.
Scenery Disk #11	From industrial Detroit to beautiful Niagara Falls. Requires Microsoft FS	$24.95	subLOGIC Corporation
Scenery Disk #7	Washington DC down through Key West, Florida. Requires Microsoft FS	$24.95	subLOGIC Corporation
Seastalker	Learn to operate the submarine before the sea monster attacks.	$9.95	Infocom
Seven Cities of Gold	Rewrite history as Christopher Columbus.	$19.95	Electronic Arts
Sex Vixens from Space	Locate The Tribe, a colony of beautiful female clones from Mondo.	$39.95	Free Spirit Software
Shadowgate	Destroy the evil warlock lord.	$49.95	Mindscape Inc.
Shanghai	Tile-matching game based on an ancient Chinese game.	$39.95	Activision
Sherlock: The Riddle of the Crown Jewels	Find the missing crown jewels using clues given in riddles.	$39.95	Infocom
Shilo: Grant's Trial in the West	Recreates the two day Civil War battle in 15 turns.	$44.95	Strategic Simultations
ShufflePuzzle Vol. 1	Twelve beautiful picture puzzles to solve.	$19.95	Polyglot Software
Silent Service	Stalk enemy convoys through the waters of WWII's South Pacific.	$39.95	Microprose Software, Inc.
Sim City	Become mayor and planner of our city. Includes 8 cities for disaster.	$44.95	Maxis Software, Inc.
Sinbad and the Throne of the Falcon	Epic seafaring quest, meet pirates and genies.	$49.95	Mindscape Inc.
Sky Chase	Two player jet fighter. Choose from seven different jets.	$39.95	Maxis Software Inc.
Skyblaster	3-D air/ground combat helicopter simulation. Battle planes & tanks.	$34.95	DigiTek Inc.
Skyfox	It's you alone against a skyful of enemy planes.	$19.95	Electronic Arts
Skyfox II: The Cygnus Conflict	Blast through asteroids at 9000 kilometers/second.	$39.95	Electronic Arts
SLAPSHOT!	Animated penalty calls and fights.	$59.95	Bethesda Softworks
Slaygon	Save the world from a toxic virus.	$39.95	Microdeal
Slip Stream	Liberate the nine streams by destroying each power crystal.	$24.95	Microdeal
Snake Pit	Control a snake through a series of complex mazes.	$34.99	Incognito Software
Snowberry	A little bear, that jumps across ice-blocks to find packages and points.	$29.95	Starvision International
Software Golden Oldies Vol.1	Four in one, Colossal Cave, Eliza, Life, Pong.	$29.95	Electronic Arts
Solitaire Royale	Includes eight different variations. Plus three more childrens' games.	$29.95	Spectrum Holobyte
Sorcer Lord by DataSoft	Free the land of Galanore before the Shadow Lord destroys the land.	$34.95	Electronic Arts
Sorcerer	Sequel to Enchanter, defeat the evil demon Jeeaar.	$14.95	Infocom
Space Battle	Travel through a dense asteroid belt in deep space.	$19.95	Constellation Software
Space Harrier by Sega	You're charged with obliterating the most ghastly creatures imaginable.	$49.95	Mindscape
Space Quest I: The Sarien Encounter	3D animated graphics.	$49.95	Electronic Arts

AMIGA GAME	DESCRIPTION	PRICE	COMPANY
Space Quest II: Vohaul's Revenge	Try to defeat the evil scientist, Sludge Vohaul.	$49.95	Electronic Arts
Space Quest III: The Pirates of Pestulon	Wilco is called to battle Pestulon pirates.	$49.95	Electronic Arts
Space Racer	Twenty-fifth century, you must compete against three planets.	$19.95	Broderbund Software
Space Ranger	Run the gauntlet across desert jungles and snow plains!	$19.99	Mastertronic International
Space School Simulator	Graduate from an elite corps of skimmer pilots, 20 different missions.	$34.95	Scorpion, Inc
Space Spuds	For use with Haitex' X-Specs 3D Stereoscopic Vision system.	$124.95	Haitex Resources
SpaceAce	An exciting duel in space.	$24.95	BoBWARE
Spacecutter	Blast alien spacecrafts, revolve, spin, twist and turn.	$29.95	Rainbird Software
Spaceport	Navigate the interior of an asteroid.	$19.95	Constellation Software
Spellbreaker	Part III of the Enchanter trilogy.	$14.95	Infocom
Spinworld	Enemies attack in waves in changing patterns. View side or above.	$29.95	DigiTek Inc.
SPOC Collection	35 original entertainment programs. Sample $5.00.	$25.00	S.P.O.C.
SPOC Disk	Comes with a disk from SPOC PD.	$25.00	S.P.O.C.
Star Fleet I: The War Begins	Protect the Alliance from invading warships.	$54.95	Electronic Arts
Star Wars	Based on the George Lucas blockbuster.	$39.95	Broderbund Software, Inc.
Starcross	Discover the key to the galaxy.	$9.95	Infocom
Starfighter One	The challenge of a lifetime for the hightech starfighter.	N/A	Starvision International
Starglider	Action-packed shoot 'em up arcade game.	$24.95	Rainbird Software
Starglider II	A superfast space flight game with 3D solid graphics.	$44.95	Rainbird Software
Stationfall	Sequel to Planetfall.	$14.95	Infocom
Stellar Conflict	As emperor, you must build a fleet of starships to conquer the galaxy.	$39.95	Brown-Wagh Publishing
Street Sports Basketball	Realistic, street-rules, with teammates from around the neighborhood.	$39.95	EPYX
Strip Poker	Realistic strip poker game with female opponents.	$39.95	Artworx
Strip Poker II	The more chips you win the better it gets.	$39.95	Artworx
Strip Poker Data Disk #4,#5		$19.95ea	Artworx
Sub Battle Simulator	World War II, use any one of 6 American or German subs.	$39.95	EPYX
Super Huey	Explore unknown territory and map the terrain.	$14.95	Cosmi Corp.
Super Puzzle	Contains 90 jigsaw puzzles.	$19.95	Signs Etc. by D. Knox
Super Puzzle Data Disks #1	Original 32 color graphics and speech for 18 nursery rhymes.	$15.00	Signs Etc. by D. Knox
Super Puzzle Data Disks #2	Original 32 color graphics and speech for 18 animals & famous places.	$15.00	Signs Etc. by D. Knox
Superstar Ice Hockey	Play center or goalie, coach a team, trade and draft players.	$49.95	Mindscape Inc.
Superstar Indoor Sports	Air hockey, bowling, darts, more.	$49.95	Mindscape Inc.
Suspect	You're framed for murder, use skills to prove your innocence.	$14.95	Infocom
Suspended	Repair your home underground capsule by commanding six robots.	$9.95	Infocom
Sword of Sodan	Become of one of the mighty twins who must rescue their parents.	$49.95	Discovery Software Int'l
Tanglewood	Search the planet Tanglewood for the priceless 3D crystals.	$39.95	Microdeal
Tank Attack	Up to four players form allies before war is declared.	$29.95	Artworx Software Company,
Targis	Infiltrate the enemy's hideout and retrieve top secret stolen parts.	$39.99	Incognito Software
Teenage Mutant Ninja Turtles	Team up with these heroes on a halfshell fight & off the Evil Foot Clan.	$39.95	Konami Inc.
TeleEpic	Test your skills wielding a mighty axe, sword or dagger.	$39.95	Software Terminal
TeleGames	Competition in 3D perspective graphic animation and digitized sound.	$34.95	Software Terminal
TeleWar	Destroy the opponent's headquarters.	$39.95	Software Terminal
Telewar II	Blast friends to rubble. Watch out! You may be the next casualty.	$39.95	Software Terminal
Temple of Apshai Trilogy	Nearly 600 dungeons and other dark places, 12 levels.	$19.95	EPYX
Terrorpods	Night adds the bitterness of sub zero temperatures.	$39.95	Psygnosis Ltd.
Test Drive	Don't drive too slowly, go off the road, or get pulled over.	$44.95	Accolade
Tetra Quest	Recover the stolen 6 Phoenix Tablets on the four-level world.	$39.95	Microdeal
Tetris	Perhaps the easiest to learn, hardest to master game on the Amiga.	$34.95	Spectrum Holobyte
Thai Boxing	Realistic kick-boxing program for the Amiga.	$14.95	Artworx
The American Civil War: Scenario Disk One	For use with The Universal Military Simulator.	$19.95	Rainbird
The Android Decision	Two cities battle for power, with robots capable of diverse roles.	$34.95	Electronic Arts
The Art of Chess	Advanced chess game.	$34.95	Anco Software USA Inc.
The Bard's Tale	Sound effects, music, over 85 spells.	$49.95	Electronic Arts
The Bard's Tale II: The Destiny Knight	More dungeons, clues, monsters, wilderness, and more.	$49.95	Electronic Arts
The Big Deal!	Help revise the programming of kitchen magician Robot Floyd II.	$34.95	DigiTek, Inc.
The Black Cauldron	Based on the popular Walt Disney movie.	$39.95	Electronic Arts
The Chessmaster 2000	Over 71000 moves, complete with booklet.	$44.95	Software Toolworks
The Crimson Crown	Sequal to Transylvania. (A1000 only.)	$19.95	Polarware Software
The Crossword Creator	Design, save, and print your own crossword puzzles.	$49.95	Polyglot Software
The Cyber Complex	Travel to the underground city controlled by a paranoid computer.	$34.95	DigiTek Inc.
The Dead of Winter	Scenes of horrifying gore. (May not be suitable for all age groups.)	$39.95	Digital Concepts
The Enigma Device	Brain flexing cryptograms.	$39.95	King Publishing
The Financial Time Machine	A historical view of the stock market.	$39.95	INSIGHT/Lehner Comm.
The Games: Winter Edition	Olympic events, downhill skiing to figure skating.	$39.95	EPYX
The Golden Pyramid	A game show for the Amiga.	$19.95	Micro Entertainment
The Guild of Thieves	Ransack a well guarded mansion, go grave-robbing, potholing,etc.!	$44.95	Rainbird Software
The Honeymooners	Role play based on "The Honeymooners" TV series.	$39.95	First Row Software Publishing
The Hunt for Red October	Based on the bestseller by Tom Clancy.	$49.95	Electronic Arts
The Island of Lost Hope	Enter a world of pirates, blood, treasure, and dangers.	$39.95	Digital Concepts
The Last Inca	Will you be the one to challenge Zulphosi?	$39.95	Free Spirit Software
The Lurking Horror	Solve the challenging puzzles of the dreaded horror in the basement.	$14.95	Infocom

AMIGA GAME	DESCRIPTION	PRICE	COMPANY
The Pawn	Your objectives are many, but the simplest is to escape from Kerovnia.	$24.95	Rainbird Software
The President is Missing	Terrorists have taken the President of the United States.	$39.95	Cosmi Corp.
The Remarkable Talking Super Puzzle	Preschool to adult. 90 possible jig-saw- type puzzles.	$19.95	Signs Etc. by D. Knox
The Rubicon Alliance by DataSoft	Stop the planet Nono will destroys the alliance, 8 difficult missions.	$29.95	Electronic Arts
The Scrolls of Talmouth	16 games, all linked into one grand quest.	$24.95	Omnitrend Software Inc.
The Seryachi Campaign	Each disk includes 16 scenarios—set within a self-consistent network.	$24.95	Omnitrend Software Inc.
The Surgeon	Monitor BP and EKG closely—one mistake and he's a goner.	$49.95	ISM Inc.
The Three Stooges	Save the local orphanage from the clutches of the evil banker.	$49.95	Cinemaware Corp
The Twilight Zone	Several stories that weave themselves into a single complex plot.	$39.95	First Row Software Publishing
The Universal Military Simulator	Re-enact ancient battles of classic history.	$49.95	Rainbird Software
Thexder	Pilot your armored robot through caves, cargo holds, & spaceships.	$34.95	Electronic Arts
Thud-Ridge	Battleing to the Hanoi-Thud Ridge.	$39.95	Three-Sixty
Thunder Blade	Control the ultimate attack helicopter,defeat the enemy.	$49.95	Mindscape, Inc.
Thunderboy	Battle the dragon in the dark land—even the butterflies are deadly.	$34.95	DigiTek, Inc.
Time Bandit	16 lands, travel through time and space for priceless treasures.	$39.95	Microdeal
Times of Lore	Hero-for-hire, learn the distinctions between appearance and reality.	N/A	Origin Systems Inc.
Torch 2081	Defend your planet against the remnants of interplanetary nuclear wars.	$29.95	Digital Concepts
Tournament Disk for Leader Board	Accessory for Leader Board.	$19.95	Access Software
Tracers	The interiors of all computers have been invaded by terrorists.	$34.95	MicroIllusions
Transylvania	Rescue Princess Sabrina by dawn & avoid the night life.(A1000 only.)	$19.95	Polarware Software
Traveler by Paragon	Explore unknown star systems. Meet bizarre human and alien cultures.	N/A	Electronic Arts
Trinity	It's the end of your London vacation and the beginning of WWIII.	$14.95	Infocom
Trivia 1: Disk for Discovery	Categories include Nobel Prize winners, sports, and famous quotes.	$19.95	MicroIllusions
Trivia 2: Disk for Discovery	Categories include movies, space travel, and famous people.	$19.95	MicroIllusions
Turbo	Speed through cities, countrysides and mountains in a road war game.	$24.95	MicroIllusions
TV Sports Football	Over 28 teams play a 16-game season with post-season playoffs.	$39.95	Cinemaware Corp.
Twilight's Ransom by Paragon	Twelve hours to rescue your kidnapped girlfriend Maria.	$34.95	Electronic Arts
Twin Ranger	Solid 3D perspective graphic, plus improved sound and animation.	$39.95	Starvision International
Ultima III	Defeat the evil wizard,roster of up to 20 characters.	$39.95	Broderbund Software, Inc.
Ultima IV	Become an Avatar and lead your people.	$59.95	Broderbund Software, Inc.
Uncle D's ConSOUNDtration	Graphics and digitized sound. 3 games: pictures, numbers, and letters.	$39.95	AlohaFonts
Uninvited	Search for your brother in a demon-filled mansion.	$49.95	Mindscape Inc.
U.S. Open Courses I	Works with Accolade's MEAN 18, five different courses.	$20.00	Moonlight Development
U.S. Open Courses II	Works with Accolade's MEAN 18, five different courses.	$20.00	Moonlight Development
Vampire's Empire	Battle against bloodthirsty vampires.	$44.95	DigiTek, Inc.
Video Vegas	Try your luck on slot machines, draw poker, Blackjack or Keno.	$34.95	Baudville
Vietnam: Scenario Disk Two	For use with The Universal Military Simulator.	$19.95	Rainbird
Viper Patrol	Mission control has spotted enemy activity in the 7th quadrant.	$14.99	Keypunch Software
Virus	Destroy the killer genes with scanners, addictive, infectious and fun.	$29.95	Rainbird Software
Vortex	Fight up to 32 enemies at once.	$39.95	Visionary-Design Technologies
Vyper	Save the universe. Over 100 levels, 25 opponent types.	$39.99	Incognito Software
War In Middle Earth	J.R.R.Tolkiens epic adventure is brought to the Amiga.	$49.95	Melbourne House/Mastertronic
Warlock	Journey through 20 levels of ghoulish graveyards and creepy country.	$34.95	Three-Sixty
Way of the Little Dragon	Karate adventure with eight levels and four challenges.	$19.95	Constellation Software
Wayne Gretzky Hockey	Actual digitized fight videos drop you right where the going gets rough!	$49.95	Bethesda Softworks
Wayne Gretzky Hockey Data Disk	Includes 24 NHL teams with player names and numbers.	$19.95	Bethesda Softworks
Western European Tour Scenery	subLOGIC FS scenery, south GB, northern France, and southern WG	$24.95	subLOGIC Corporation
Western Games	Wacky olympic-style contests: arm wrestling, cow milking, & more.	$34.95	DigiTek, Inc
Where in the World is Carmen Sandiego	International chase through the beautiful capitals of the world.	$44.95	Broderbund Software Inc.
Who Framed Roger Rabbit?Action	The movie on the small (Amiga) screen, animated with Disney art.	$44.95	Buena Vista Software
Willow	Fight for the survival of good, create new maps and new spells!	$39.95	Mindscape Inc.
Winnie-the-Pooh in the Hundred-Acre Wood	Help Pooh and the others find their belongings.	N/A	Electronic Arts
Winter Challenge	Winter events: Ski Jump, Downhill, Bobsled, Giant Slalom, & Biathalon.	$14.95	Mindscape Inc.
Winter Games	Seven different events, from downhill skiing to figure skating.	$19.95	EPYX
Wishbringer	Ransom note, kidnapped cat, a mail clerk, & the Wishbringer stone.	$14.95	Infocom
Witness	As a detective in 1938 L.A. Find the murderer or face suspicion.	$9.95	Infocom
Wizard Wars	Tale of gallant heroism and wicked villainy.	$39.95	Electronic Arts
Word Plex	Take turns spinning a wheel and guessing letters in mystery phrases.	$34.95	Brown-Wagh Publishing
Word Plex 2.1 by PAR Software	Updated version of Word Plex.	$39.95	Brown-Wagh Publishing
Word Plex Data Disks	Additional data disks for Wordplex.	$24.95	Brown-Wagh Publishing
World Class Leader Board	Update to Leader Board.	$44.95	Access Software
World Games	Ski in France, roll logs in Canada, dive cliffs in Mexico, plus 5 more.	$39.95	EPYX
World Snooker	Enjoy pool played 5 different ways from around the world.	$24.95	Artworx Software Company
World Tour Golf	Choose from over 20 different courses or design your own.	$39.95	Electronic Arts
Zany Golf	Flashing lights, crazy music, and a hole with a mind of its own.	$39.95	Electronic Arts
Zero Gravity	Space age raquetball in a weightless atmosphere.	$29.95	Microdeal
Zoom	The oops factor makes this maze difficult.	$29.95	Discovery Software Int'l
Zork I	Search the ruins of an underground ancient empire for treasures.	$14.95	Infocom
Zork II	Journey to a hidden region ruled by the exiled Wizard of Frobozz.	$14.95	Infocom
Zork III	Zork climax find out why you are in the perilous ruins.	$14.95	Infocom
Zork Trilogy	Zork I, Zork II, and Zork III all in one package.	$49.95	Infocom

Amiga Game Vendors

3W Computer Games, Inc.
P. O. Box F
Cambria, CA 93428
(805) 927-5439
Inquiry #226

Access Software, Inc.
545 West 500 South
Bountiful, UT 84010
(800) 824-2549
(801) 298-9077
Inquiry #227

Accolade
550 S. Winchester Blvd.
San Jose, CA 95128
(408) 985-1700
Inquiry #228

Actionware Corporation
38 W. 255 Deerpath Rd.
Batavia, IL 60510
(800) 848-2333
(312) 879-8998
Inquiry #229

Activision
3885 Bohannon Drive
Menlo Park, CA 94025
(415) 329-0800
Inquiry #230

Addison-Wesley
Jacob Way
Reading, MA 01867
(617) 944-3700
Inquiry #231

Aegis Development, Inc.
2210 Wilshire Blvd.
Santa Monica, CA 90403
(213) 392-9972
Inquiry #232

AlohaFonts
1024 Vinci Ave.
Sacramento, CA 95838
(916) 991-7738
Inquiry #233

American Software Dist.
RR 1 Box 290, Bldg. 30
Urbana, IL 61801
(217) 643-2050
Inquiry #234

Anco Software USA, Inc.
P. O. Box 292
Burgettstown, PA 15021
(412) 947-9922
Inquiry #235

Antic Publishing
544 Second St.
San Francisco, CA 94107
(415) 957-0886
Inquiry #236

Artworx Software Co. ,Inc.
1844 Penfield Rd.
Penfield, NY 14526
(716) 385-6120; (800) 828-6573
Inquiry #237

ASDG, Inc.
925 Stewart St.
Madison, WI 53713
(608) 273-6585
Inquiry #238

Baudville
5380 52nd St. SE
Grand Rapids, MI 49508
(616) 698-0888
Inquiry #239

Beta Software
P. O. Box 20537
Wichita, KS 67208
Inquiry #240

Bethesda Softworks
9208 Burning Tree Road
Bethesda, MD 20817
(301) 926-8300
Inquiry #241

BoBWARE
9707 Richmond #131
Houston, TX 77042
Inquiry #242

Broderbund Software, Inc.
17 Paul Drive
San Rafael, CA 94903
(800) 527-6263
(415) 492-3200
Inquiry #243

Brown-Wagh Publishing
16795 Lark Avenue, Suite 210
Los Gatos, CA
(408) 395-3838
Inquiry #244

Buena Vista Software
500 S. Buena Vista St.
Burbank, CA 91521
(818) 569-7397
Inquiry #245

Cinemaware Corp.
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
(805) 495-6515
Inquiry #246

Classic Future
3100 W. Chapel Ave.
Cherry Hill, NJ 08002
(609) 667-2526
Inquiry #247

Command Simulations
297 North St., Building #3
Hyannis, MA 02601
(617) 790-1994
Inquiry #248

Commodore
Business Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100
Inquiry #249

Conflict Recreations, Inc.
P. O. Box 272
Oakdale, CT 06370
Inquiry #250

Constellation Software
17 St. Mary's Court
Brookline, MA 02146
(617) 731-8187
Inquiry #251

Cosmi Corporation
431 N. Figueroa St.
Wilmington, CA 97044
(213) 835-9687
Inquiry # 252

Dark Horse
P. O. Box 36162
Greensboro, NC 27416
(919) 852-3968
Inquiry #253

David Ashley
2710 Haste, # 6
Berkeley, CA 94704
(415) 540-0992
Inquiry #254

Digital Concepts
43035 Hayes Road, Suite 229
Sterling Heights, MI 48078
(313) 772-1416
Inquiry #255

DigiTek, Inc.
8910 N. Dale Mabry
Executive Center, Suite #37
Tampa, FL 33614
(813) 933-8023
Inquiry #256

Discovery Software
163 Conduit St.
Annapolis, MD 21401
(301) 268-9877
Inquiry #257

Eagle Tree Software
P. O. Box 164
Hopewell, VA 23860
(804) 452-O623
Inquiry #258

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(800) 245-4525;
in CA, (800) 562-1112
(415) 571-7171
Inquiry #259

EPYX
600 Galveston Drive
P. O. Box 8020
Redwood City, CA 94063
(415) 366-0606
Inquiry #260

Erisian Software Products
132 Cedar Dunes
New Smyrna Beach, FL 32069
(904) 423-3949
Inquiry #261

Ethos Development
3617 Lawson Blvd.
Delray Beach, FL 33445
(407) 496-0843
Inquiry #262

Finally Technologies
25 Van Ness
San Francisco, CA 94102
(415) 564-5903
Inquiry #263

First Row Software Publishing
3624 Market St.
Philadelphia, PA 19104
(215) 662-1400
Inquiry #264

Free Spirit Software, Inc.
P. O. Box 128, 58 Noble St.
Kutztown, PA 19530
(215) 683-5609
Inquiry #265

FTL Games
6160 Lusk Blvd. C-206
San Diego, CA 92121
(619) 453-5711
Inquiry #266

Haitex Resources
208 Carrollton Park, Suite 1207
Carrollton, TX 75006
(214) 241-8030
Inquiry #267

Image Tech
9276 Adelphi Road, Suite 102
Adelphi, MD 20783
(301) 439-1151
Inquiry #268

Incognito Software
34158 Warren, Suite 149
Westland, MI 48185
(313) 462-2148
Inquiry #269

Infinity Software
1144 65th St. Suite C
Emeryville, CA 94608
(415) 420-1551
Inquiry #270

Infocom
125 Cambridge Park Drive
Cambridge, MA 02140
(800) 262-6868
Inquiry #271

INSIGHT/
Lehner Communications
2708 Arlington Ave.
Highland Park, IL 60035
(312) 432-5458
Inquiry #272

Interplay Productions
1550 N. Bristol, Suite B
Newport Beach, CA 92660
(714) 476-8686
Inquiry #273

Intracorp, Inc.
14160 S.W. 139th Court
Miami, FL 33186
(800) 468-7226
Inquiry #274

ISM, Inc.
P. O. Box 247
Phoenix, MD 21131
(301) 527-1988
Inquiry #275

Jenday Software
P. O. Box 4313
Garden Grove, CA 92642
(714) 636-3378
Inquiry #276

Keypunch Software
1221 Pioneer Building
St. Paul, MN 55101
(612) 292-1490
Inquiry #277

King Publishing
921-32nd Street
Sioux City, IA 51104
(712) 252-4604
Inquiry #278

Konami, Inc.
815 Mittel Drive
Wood Dale, IL 60191
(312) 595-1443
Inquiry #279

Magnetic Images Co.
P. O. Box 17422
Phoenix, AZ 85011
(602) 265-7849
Inquiry #280

Mark of the Unicorn
222 Third St.
Cambridge, Ma 02142
(617) 576-2760
Inquiry #281

Mastertronic International
711 West 17th St. Unit G9
Costa Mesa, CA 92627
(714) 631-1001
Inquiry #282

Maxis Software, Inc.
953 Mt. View Dr. Suite 113
LaFayette, CA 94549
(415) 376-6434
Inquiry #283

Mediagenic
3885 Bohannon Dr
Menlo Park, CA 94025
(415) 329-0800
Inquiry #284

Melbourne House
Distributed by Mastertronic International
Inquiry #285

MichTron
576 S. Telegraph
Pontiac, MI 48053
(313) 334-5700
Inquiry #286

Micro Entertainment
14 Wisteria Way
South Portland, ME 04106
(800) 255-5217;
in Maine, (207) 767-2664
Inquiry #287

Microdeal
Distributed by MichTron
Inquiry #288

Microillusions
17408 Chatsworth St.
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WACKO
Walla Walla Computer Users
Organization
Richard Daley, President
P.O. Box 217
College Place, WA 99324

Description: We have monthly meetings, a newsletter called *WACKO World*, and a monthly club disk. We actively trade newsletters with other groups.

Meeting: 3rd Sunday of each month at 2pm.

Location: Main lecture hall of the Life Science Center at Walla Walla College.

Users Unite Users Unite

NOCK
New Orleans Commodore Klub
Carol S. Koster, Secretary/Public Relations
3701 Division Street, Suite 140
Metairie, Louisiana 70002

Description: Serving Amiga and Commodore Users in the greater New Orleans area. We are officially recognized by Commodore as an approved User's Group. We have a monthly newsletter and over 250 PD disks for the Amiga and 200 PD disks for C-64/128. Meetings feature news, speakers, demonstrations, and tutorials.

Meeting: 3rd Saturday of each month at 4pm.

Location: Old Metairie Public Library, 2350 Metairie Road, Metairie, LA.

Users Unite Users Unite

AAG
Another Amiga Group
Grit Van, President
Odenton, MD

Description: We are a small but *FUN* user's group. The group has members from a wide variety of computing backgrounds and is an excellent place for the 'novice' to get help.

Meeting: 2nd Monday of each month.

Location: Provinces Branch of the Anne Arundel County Library in Odenton MD.

WesCAUG
Western Colorado Amiga User's Group
Bob Payne, President
522 29 Road
Grand Junction, CO 81501

Description: We have just recently formed and would like to inform the world about our existance. We are 20 members and growing fast. We have written a constitution and chosen executive members.

Meeting: 1st and 3rd Saturdays of the month.

BBS: We have a section on the Squirrels Nest. The sysop is Allan Worely and the phone number is (303) 242-7977. The Blackboard, sysop Zak Speakman, phone number (303) 434-5492

Users Unite Users Unite

Amiga Users of Southern Maine
Joe Beecher, Treasurer
P.O. Box 10237
Portland, Maine 04102

Meeting: 1st Friday of the month at 6:30pm.

Location: Fleet Bank, Cumberland Street, Westbrook Maine.

BBS: We use ACORN BBS. It has 1 line with 6 trunks and 489 MEG of disk space. It supports many different computers including the Amiga, C-64/128, Atari, Apple II, and the MacIntosh to name a few. The sysop is Tony Cremonese and the number is (207) 865-3004.

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FWACC
Fort Wayne Area Commodore Club
Art Skiles, Amiga Librarian
P.O. Box 13107
Fort Wayne, IN 46867

Description: We are a group of computer enthusiasts for the C-64, C-128, and Amiga computers. We provide a monthly newsletter, and PD software libraries for both C-64/C-128 and the Amiga.

Computer Users Groups of Australia
Ross Hall, President
P.O. Box 166
Pittsworth, Qld 4356

Description: We support the Amiga and other computers. We have discount vouchers for various stores and competative prices on diskettes. We have a newsletter the Micro Gazette, published monthly (disk based).

Meeting: 1st Saturday of the month.

Location: St. Peters Lutheran Church Hall, corner of Hadley & Grand street, Pittsworth, Qld.

Users Unite Users Unite

F.C.A.U.G.
Fairfield County Amiga Users Group
Kevin. A. Brook
57 North Street, Suite 315
Danbury, CT 06810-5638

Description: At each meeting, we discuss topics, mention events, demonstrate products, tutor beginners, and sell public domain disks. We have a newsletter entitled PIXEL PARADE. We are interested in swapping newsletters with other groups.

Meeting: 2nd Saturday of the month at 5:45pm.

Location: Danbury Hospital Health Sciences Auditorium , Danbury CT.

BBS: We have a BBS called Archives run by sysop Scott Steinsvaag at (203) 938-9163.

Users Unite Users Unite

If you would like your users group info printed here, please send a letter with the following information:

- Users Group name.
-Group's address and phone number.
-Point of contact.
-A brief description of your group (25 words or less).
-The location and time you meet.
-If you use a BBS include the name, phone number, and sysops name.
-Send us your newsletter, we enjoy reading them.

Thanks •AC•

John Steiner's

Bug Bytes

The Bugs & Upgrades Column

Commodore has been shipping the new 1 MB "Fat Angus" custom graphics chips in new Amiga 2000 and 2500 systems since April. As of this writing, there is no word regarding when the new graphics chips will be available for units already in the field. Many users have waited for some time to take advantage of the full power of the 1 MB chip. Hopefully by the time you read this, the chips will be available in enough quantity for distribution as upgrades.

I have been told that the upgrade will be more involved than just swapping chips, unless you have a revision 6 motherboard. Older motherboards require moving a jumper, cutting a circuit board trace, and replacing the chip. The large scale integration semiconductor device will require a special tool to remove it from the socket.

Another new product, the AT Bridge Card, has been shipping with Janus version 2.0 software. The new software has many features and advantages over the original XT Bridge Card software. Though the new version Janus system will operate with the XT bridge, it is currently only available with the new AT Bridge Cards. A spokesperson for Commodore said an upgrade will be available soon, and XT Bridge Card users will be able to find out about the upgrade as soon as it becomes available from their local Amiga dealer. Owen White of Los Cruces, NM is trying to obtain a shareware program called NGI, a Bob-creating program. He has written to the author at National Pixel Products of Valencia, CA, but has not received a reply, and the company is no longer listed in the telephone directory. If you know the company's latest location, drop me a line, and I will pass the information along to Mr. White.

Robert Stone of San Jose, CA noticed a problem with Disk Master version 1.3 when he used *.SND. The pattern to copy a group of .SND files from a floppy to his hard disk, not only did the files with .SND extensions get copied, but any file with .SND anywhere in the name also got copied. After some experimentation, he determined that there seems to be no difference between *abc and *abc*. Has anyone else run into this problem?

Eric Saunders of Fredericksburg, VA writes about an incompatibility problem with the Microbotics Hardframe SCSI controller and the CMI Processor Accelerator. According to Mr. Saunders, CMI is aware of the problem, and is working on it. Another problem involves the Hardframe and the JLINK command on the Bridge Card. When Saunders autoboots from the hard disk, the JLINK command causes the PC side to hang.

It appears that if the Janus device driver is not loaded at the start of the boot sequence by the Binddrivers command, JLINK hangs. Since the Hardframe is autobooting, the hard frame device driver is recognized first, then Binddrivers is issued from the startup sequence. The problem can be simulated by not autobooting on the hard drive, and removing Binddrivers from the Startup-sequence. When Binddrivers is finally executed from the CLI; JLINK hangs. If autobooting is disabled, and Binddrivers is the first command in the startup-sequence, both the Hardframe and JLINK work properly. Correspondences with Commodore and Microbotics have not produced a solution. If you have found a workaround for this problem, let me know and I will pass it along.

In the BugBytes column in AC 4.4, I reported on a problem with MaxiPlan and FastFonts. Dennis Smith of Grafton, VA wrote in a workaround for the problem. Version 1.9 resides on his harddisk, and in his startup sequence, he uses :ff >nil: Dennys.font to load MaxiPlan. He created a project icon that looks like the MaxiPlan icon, but actually executes a script with default tool set to "C:iconx".

The script, which has the same name as the icon (minus the .info) is :echo "FLASH means font-not-found...Loading Topaz.font:ff >nil: topaz.fontstack 12000echo "Loading MaxiPlan"dh0:Maxi-Plan/Maxiplanecho "Loading Dennys.font"ff>nil: dh1:fonts/Dennys.font*

On the topic of MaxiPlan, the program originally published by Oxxi, Inc., now has a new name and a new publisher. The latest incarnation of MaxiPlan is now called Plan/It. New features and bug squashes have made this program a true upgrade from MaxiPlan version 1.9. The latest version now exports and imports Lotus 1-2-3 files. An ARexx port has been included, and arbitrary text in multiple fonts, colors and type styles are included in the graphing features. GANTT project charts have also been added to the program.

Users of any version of MaxiPlan can upgrade to Plan/It by sending both the original disks and manual, and a check for $45.00 to B.E.S.T. Inc.

Delphi Noetic Systems, developers of F-Basic, have announced the release of F-Basic version 2.0. The program has many new features, including direct IFF file support, high level random access file commands, and high level animation, among others. The upgrade can be purchased by registered users for $49.95. To receive your upgrade, contact Delphi Noetic Systems, Inc.

Emerald Intelligence has mailed an upgrade offer to registered users of Magellan. Version 1.1 adds additional features such as display window scroll bars, complete trig functions, and an improved file requester among other

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things. Several other improvements have also been made. To receive your upgrade, send both your original program and data disks and a check for $30.00 to Emerald Intelligence.

Microway, makers of the AGA 2000 "flickerFixer" board,manufactures one of the required accessories for Amiga professional desktop publishing or CAD work. The advanced graphic adapter allows unparalled use of a high scan rate color monitor. One disadvantage of the AGA 2000 board is that you can't use a genlock on an A 2000 with the "flickerFixer" board installed.

Microway is working on a daughterboard that plugs into the AGA 2000 which will allow the use of a genlock. They already have a prototype or two built, but a few technical problems remain. They hope to demonstrate the new board at the Chicago AmiEXPO in July.

Peter Silverstone, the designer of the AGA 2000, has created specifications and cable connection information that allows inexpensive monochrome VGA monitors to be connected to the Amiga 2000. The cable properly mixes the RGB signals to give a display that works nicely with HAM and games. The advantage of VGA monochrome is that the monitors are very sharp and very inexpensive. The cable is easy to build, or you can probably order one from Redmund Cable, or your local Amiga dealer.

Gold Disk has released version 1.2 of Professional Page. The premier Amiga desktop publishing program now imports clip files from Professional Draw. Clip files can contain one or several pieces of structured clip art. The new release squashes several bugs and adds a few new features, including the ability to sort the directory lists. A major change in Professional Page1.2 is the removal of Postscript Specs and Dot Matrix Specs from the Preferences menu. All the preferences have been inserted into the large print requesters.

Professional Draw users will recognize the print requesters, because they are virtually identical. A new feature added to Professional Page is EPSF file export option. EPSF export is a major addition that allows EPSF files to be exported to other publishing packages that cannot read a Professional Page file. Professional Page now supports color Postscript printers directly, as well as, printing color separations.

Professional Page provides several new hot keys. Once software becomes intuitive, it is time consuming to remove the fingers from the keyboard to drag a mouse to the top of the menu bar. Being able to access additional menu choices from hot keys is a major improvement. If you haven't already received notice of a Professional Page update, here are the details.

If you purchase Professional Page within 90 days of requesting the upgrade, and return your registration card with the serial number sticker in place; the upgrade is free. If your purchase date was earlier than the previous 90 days, and you have registered your purchase, the upgrade fee is $20.00.

A press release from Central Coast Software has warned that a pirated version of Quarterback is floating around the networks. The program is easily identifiable, as it has been modified, and carries the version number 3.0. Any other modifications made to the program are unknown, but it seems to have been modified from version 2.1.

The latest available version of Quarterback is 2.3, a minor update from version 2.2. The new version enhances program operation for users who backup to high density backup devices such as removable hard disks and other non-mountable mass storage devices. Users who backup to floppy disks will see no changes from their 2.2 versions. For upgrade information, contact Central Coast Software.

That's all for this month. If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, you may notify me by writing to:

John Steiner c/o Amazing Computing
Box 869 Fall River, MA 02722.
..or leave EMail to Publisher on People Link or 73075,1735 on CompuServe.

•AC•

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Adapting Analog Joysticks to the Amiga

by David Kinzer

This article explains how to build an adapter to allow IBM or Apple joysticks to properly function on an Amiga. In addition, I have included a program in "C" as a tutorial on how to properly write programs to read the joysticks. I have fully tested this design on my own A1000 and A2000 and find it to be satisfactory. You need to evaluate the design for your own uses.

This project requires electrical connections to the Amiga computer, so it should be done carefully, and with a full understanding of the design. Since I cannot control the conditions under which the project is built or tested, I cannot accept any responsibility for any damages.

The Hardware

The Amiga supports a wide variety of input devices for use with the mouse ports. One of these is an analog joystick. Unfortunately, the Amiga design team did not design the port with presently available analog joysticks in mind. Since the number of Amigas sold has never been as great as the Apple II or IBM PCs and their clones, joystick manufacturers have ignored the Amiga.

Joysticks for the Amiga and those for the Apples and IBMs differ in their pinouts and in the resistance values of their variable resistors. The resistors change their value according to the joystick's position. There are two resistors in the joystick, one for the horizontal (or X) position, and another for the vertical (or Y) position. The Amiga requires the resistors to have a maximum resistance of 1M Ohm (one M Ohm = one million Ohms) (See note 1). The "standard" joysticks have a maximum of 150K Ohms (one K Ohm = one thousand Ohms). This means they do not have enough range to work properly for the Amiga.

The Amiga analog joystick port is made up of a pair of analog current input to digital information output (A/D) converters. Part of the circuitry is in the Paula custom chip, and it is intertwined with the creation of the video picture on the screen. For clarity, we will talk about how one converter (which does one axis of the joystick) works, but in the hardware the other converter is working in parallel also.

The analog conversion starts when the video beam is traveling back to the top of the screen. During this time, the Paula chip is discharging a capacitor (see Figure 1). After the video beam has made a few passes across the screen (so no more than 255 scan lines remain for both NTSC and PAL machines), the discharging is stopped. The capacitor then starts charging from the +5 Volt supply through the variable resistance of the joystick. While this is happening, a count of the number of times the video beam crosses the screen is kept. The counter stops when the voltage on the capacitor reaches a pre-set level (approximately 2 Volts), and the conversion is complete.

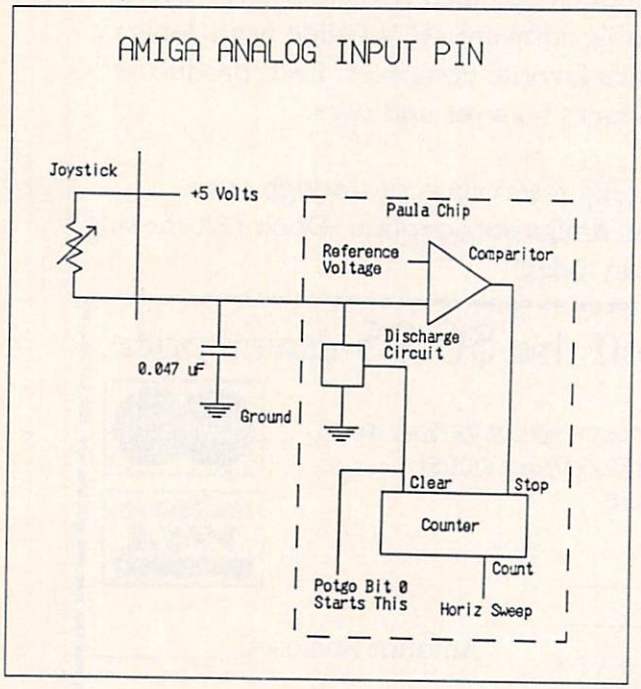


Figure One
Amiga Analog Output Pin

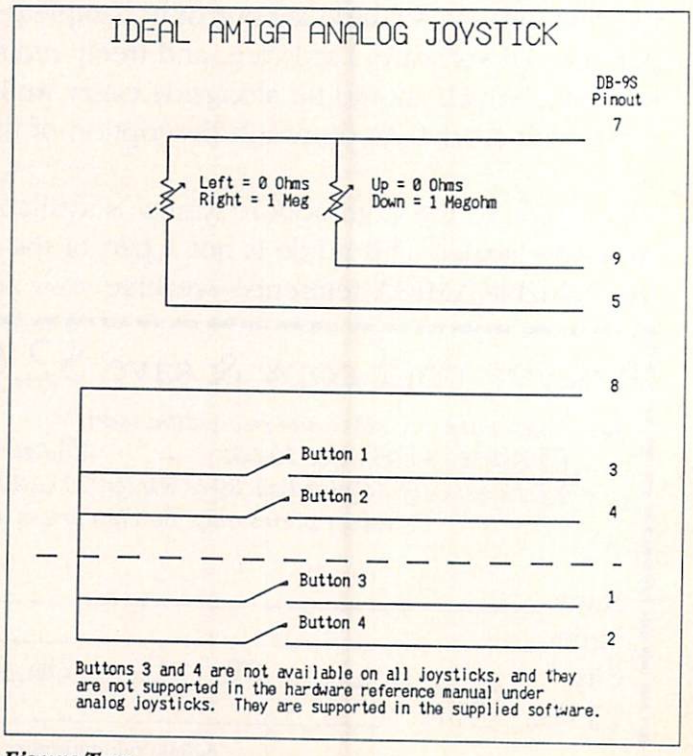


Figure Two
Ideal Analog Joystick

The number of scan lines of time it takes to reach the preset threshold is proportional to the product of the capacitance and the resistance. This product is known as the R-C time constant. The joystick position controls the resistance, so the number of scan lines it takes to reach that threshold is directly related to the joystick position. If the joystick is in the 0 Ohms resistance position, the capacitor charges immediately, and the output of the conversion is zero. If the joystick is in its maximum resistance position, the capacitor takes a long time to charge up and may never reach the threshold before the video beam reaches the bottom of the screen, resulting in a conversion to 255. With the joystick in the middle, the output should be about 128.

The problem with the "standard" joysticks is their maximum resistance is not high enough. This means that even at maximum resistance, too much current flows into the capacitor, and the counters never reach their maximum. In fact, the count will never get more than about a fifth of the way there. Because of the unavailability of Amiga joysticks, some games have been written using this reduced range. However, they have suffered a loss of resolution (though perhaps not playability) by doing this.

There are a few ways to fix the joystick shortage. One would be to parallel larger capacitors across the existing ones. This might work, but since we don't know the Paula chip's exact internal configuration, we might damage something. Also, there is probably a current limiting resistor inside the Paula chip which will form a voltage divider with the joystick resistor, preventing complete discharge of the capacitor. This leaves less voltage for charging, increasing the effect of noise in the system. Another way would be to change the resistance of the joystick. But different brands of joysticks are all different and, though this would be the best solution, finding the appropriate resistors might be difficult. What we do here is change the apparent resistance of the joystick so that, to the Amiga, it looks like the type of joystick it wants.

Figure 2 shows the internal function of the ideal Amiga joystick. The variable resistors connect to +5 Volts on one end, and to the Amiga's internal capacitors on the other. The time it takes to charge up each of the capacitors is individually determined by the value of the resistors (again, changed by the horizontal and vertical joystick position).

I have tried to design a low parts count adapter which allows a lower resistance value joystick to work exactly as an ideal Amiga joystick. The small size of the circuit allows you to place it inside most joysticks if desired. Alternately, you can make it an external adapter, which has the added benefit of allowing the joystick to work with its original machine.

Figure 3 is a schematic of the joystick adapter. The analog lines connect to the analog input pins of the Amiga, where the capacitors are located. The op-amps (operational amplifiers) used in the circuit are in a voltage follower configuration. For each, the voltage on the output will be kept the same as the voltage on the corresponding positive (+) input. The positive inputs monitor the voltage on the capacitors, so the output of the op-amps are at those same voltages.

For each axis, the current flowing through the variable resistor (in the joystick) from +5 Volts reaches the two resistors in the adapter. Since the voltage on the op-amp output and the voltage on the Amiga input are the same, the voltage across the resistors is the same. This results in the current always being split in a constant ratio. The ratio of the resistor values control the ratio of the current split. By selecting the appropriate resistances, the current into the computer is reduced to the amount that would flow if an ideal joystick were attached.

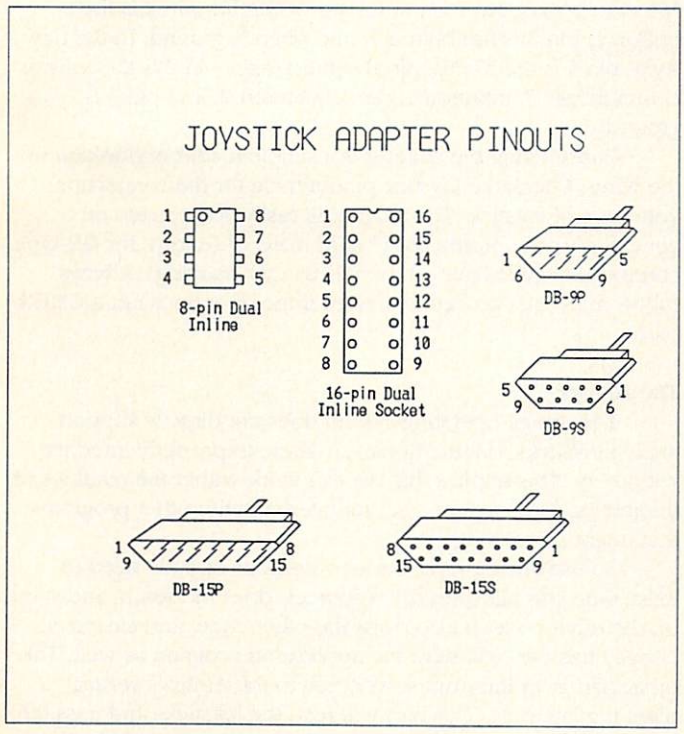


Figure Three
The Joystick Adaptor Pinouts

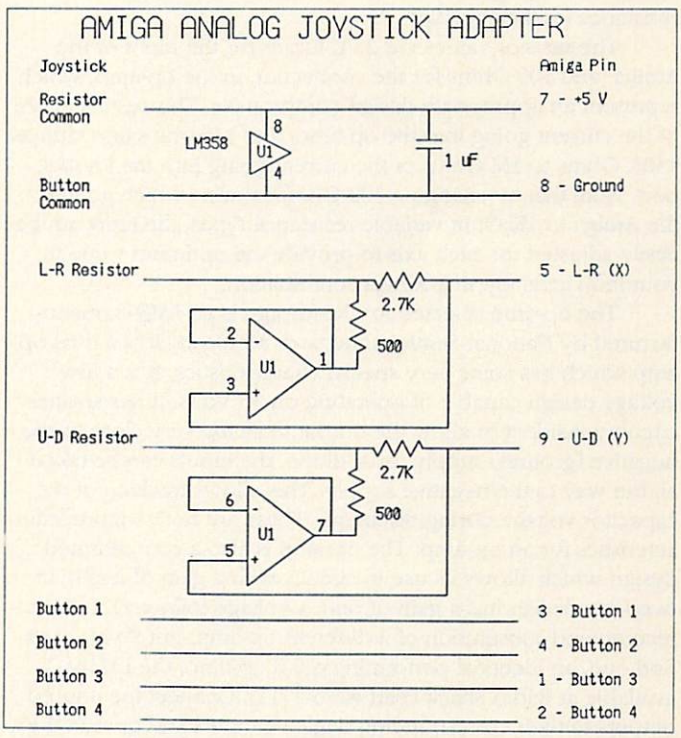


Figure Four
The Amiga Analog Joystick Adaptor

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exactly what is on the positive input). Too high a resistance will result in the voltage not rising fast enough in the minimum resistance joystick position.

The resistor values are 2.7K Ohms for the input of the Amiga, and 500 Ohms for the connection to the op-amp, which represent an appropriate design compromise. This results in 5/6 of the current going into the op-amp, and 1/6 (the same ratio as 150K Ohms to 1M Ohm) of the current going into the joystick port. Note that by changing 500 Ohm resistors, which go into the Amiga to 1K Ohm variable resistance types, the ratio can be easily adjusted for each axis to provide the optimum value for your individual joystick-Amiga combination.

The op-amp selected for this design is an LM358, manufactured by National Semiconductor or Motorola. It is a dual op-amp which has some very special characteristics. It is a low voltage design capable of operating on +5 Volts. It has special circuitry inside it to allow the output to swing very close to the negative (ground) supply. In addition, the inputs can be taken all the way to the negative supply. This allows tracking of the capacitor voltage during discharge. These are not common characteristics for an op-amp. The op-amp is also a compensated design which allows its use in circuits with a gain of less than two (this design has a gain of one, a voltage follower). I do not recommend substitution of a different op-amp, but if you can't find one, an identical performing quad op-amp, the LM324, is available at Radio Shack (part #276-1711). Connect the unused outputs to their corresponding negative inputs and ground the unused positive inputs.

The capacitor from +5V to ground filters the power coming from the 5V supply of the Amiga. 1 microfarad is sufficient, but this value is very flexible.

The Amiga joystick port uses a nine pin "DB" style connector. The joystick adapter needs a DB-9S (the S is for sockets) connector to fit. One good way to get one of these is to buy a joystick extension cord and cut the cord off (keeping enough cord to reach where you want your adapter). The Amiga supplies +5 Volts on pin 7, and ground on pin 8. The X (side-to-side) input is pin 5, and the Y (up and down) input is pin 9. The Amiga expects these inputs to be pulled up to +5 Volts through the variable resistors of the joystick. Fire button 1 (also known as the left fire button) connects to pin 3. Button 2 (the right button) connects to pin 4. When pressed, the fire buttons connect their pin to ground.

An IBM type joystick ends in a DB-15P (the P is for pins). This means the adapter needs a DB-15S to fit. The X-axis resistor connects to pin 3, the Y-axis resistor connects to pin 6, and the other end of both connect to pin 1 (the resistor common pin). Fire button 1 connects to pin 2, fire button 2 connects to pin 7, and the other end of both connect to pin 4 (the fire button common).

Apple joysticks may need to be modified slightly. Some joysticks have the fire button pins connected to ground through a resistor, and when the button is pressed, the pin is switched to the 5 Volt pin. This results in an operation that is the reverse of what the Amiga expects. The joystick fire buttons can be rewired to simply connect to ground when pressed. An alternative is to add a simple TTL inverter to the adapter, preserving the original function of the joystick.

There are two types of Apple joysticks. The original type ended in a 16-pin dual-inline plug, which plugged into the computer motherboard. The newer type ends in a DB-9P. For the old type we need a 16-pin IC socket, and for the new type we need a DB-9S to fit. For the old style, pin 6 is the X-axis, pin 10 is the Y-axis, pin 1 is the resistor common, pin 2 is fire button 1, pin 3 is fire button 2, and pin 8 is ground. In the new style, pin 5 is the X-axis, pin 8 is the Y-axis, pin 2 is the resistor common, pin 7 is button 1, pin 1 is button 2, and pin 3 is ground.

Constructing the adapter is a simple matter of hooking up the wires. Check the joystick pinout table for the connections to your type of joystick. The adapter is easily constructed on general purpose prototyping board material (except for DB-type connectors which have a funny 0.109 inch spacing). Always follow anti-static procedures, even if the op-amp is not a CMOS part.

The Driver

The Amiga operating system does not directly support analog joysticks, but the hooks are there to properly interface with them. This implies that we can work within the confines of the multitasking system, and not interfere with other programs that might be running.

To use analog joysticks, two portions of code need to exist. One part allocates the resources, does the setup, and starts up the other code. It also stops the other code, and cleans up. Usually this part will have the application program as well. The other part is an interrupt server, tied to the Amiga's vertical blanking interrupt. This part will read the joysticks and pass the information back to the first part every time a vertical blanking interrupt occurs.

Allocating the joystick port prevents other tasks from getting this hardware resource, and assures us that no other program is currently using it. This is done by opening the Potgo resource library, allocating the bits we need with the AllocPotBits function call. We then assure the inputs we need are programmed as inputs (their state is unknown, some other program may have left them as outputs) with the WritePotgo function.

Once the port is allocated, we set up to have the interrupt server routine called on the vertical blanking interrupt. The interrupt routine will send the joystick positions back to us in a data area we set up for it. We also send the server the address of the Potgo library in this data area, so it can use the WritePotgo routine to write to the Potgo register in a multitasking cooperative way. We allocate this data area as public memory with the MEMF_PUBLIC bit. This helps insure future compatibility should it be run on a different processor type.

The interrupt routine is started by filling out an Interrupt structure with the node type (NT_INTERRUPT), priority (10 works well), node name, data area we allocated, and the address of the interrupt routine itself. The start up is done by calling the function AddIntServer with the interrupt we want to service (INTB_VERTB - vertical blanking), and the address of the interrupt structure. Note again that we allocated public memory, this time for the Interrupt structure.

The interrupt routine is now called automatically every time the video beam is traveling back to the top of the screen. The values in the data table are constantly updated with the latest joystick position by the routine. We are free to read these values and do whatever our program is going to do with them.

When we decide our program is to end, we turn off the interrupt server by calling RemIntServer. We then free the memory tied up with the Interrupt structure and the shared data area, and free the allocated Potgo bits.

The interrupt server routine is kept as short as possible. There are other tasks which need to be performed during this interrupt and we can't hog all the time. We do this by keeping the function simple (no averaging, etc.) and writing it in assembly language. A trade-off was made here for the case of single-shot button presses. Additional code was inserted so down presses are memorized. This allows code which might not sample the data very often to catch quick button presses.

The server reads the analog joystick values and fire button positions directly from the Amiga hardware registers, and places these values in the shared data area. It then writes to the Potgo register to start another read of the analog joystick positions. This routine must return with the "Z" bit of the M68000 condition code register set. This is most quickly done by the last move instruction.

Now that we can read the position of the joystick, we need to interpret the values we get back. This requires a little bit of conservative thinking. The capacitance values used by Commodore on the joystick port vary somewhat. The joysticks themselves display considerable variation from unit to unit. What we must keep in mind is that the joystick may not be able to reach the endpoints of the counter range. For "spring-to-center" joysticks, they might not return to exactly the same place every time. Noise also presents a problem, especially when reading higher numbers from the joysticks.

One way to handle the endpoint problem is to have the user move the joystick from side to side and up and down, and memorize the endpoint locations. Then, with the joystick centered, memorize the center location for the spring-to-center kind. This approach has the advantage of allowing the user the fullest possible range of joystick movements. Its disadvantage is the need to do on-the-fly ratio mathematics, which require some processor time.

Another approach is to allow some tolerance for these problems. Consider any count under (for example) 20 to be the lowest possible reading, and anything over 235 to be the highest possible. Any readings in between are used in a linear fashion (except the center, see below). This gives up some possible resolution, but is extremely cheap in terms of processor time. This approach works very well in high-performance applications like games where, if the user is most of the way over on the joystick, he is likely to be all the way over on it anyway.

For spring joysticks, the center location needs some dead band. This allows for slop in the return-to-center mechanism. Counts from 120 to 135 should be considered centered (e.g. the space ship stays on present course).

Noise appears in the form of varying readings, even though the joystick itself hasn't moved. This is most prevalent when the resistor values are high, which results in high numbers in the registers. Occasionally, a "bad reading" is obtained. These effects are minimized by averaging some number of readings. If possible, ignoring the obviously bad reading will result in smoother operation. You might consider keeping a history of the last 7 readings, throwing out the highest and lowest, and averaging the remaining five.

(continued)

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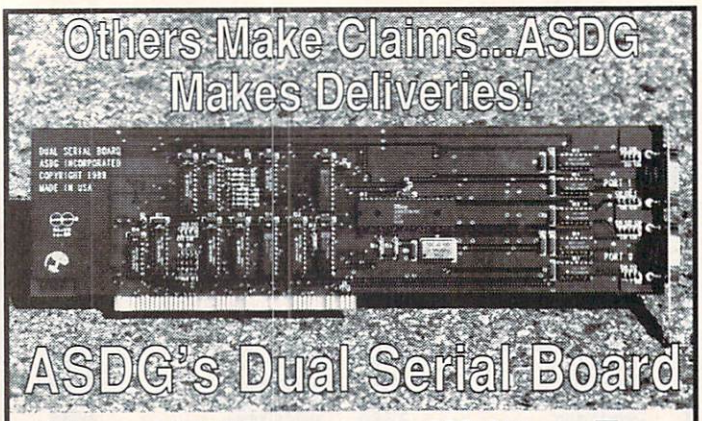
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Note that the OpenAJoystick function returns a pointer to the driver's data area. This allows direct access to the data if desired, and will save some processor time while running the application. This will lose the unit independence that existed before, and single shot button events will have to be processed by the application itself.

Using unit 0 of the analog joystick driver requires turning off the input device. The input device uses gameport unit 0 for the mouse input. This is beyond the scope of this article. I suggest you use unit 1 for the joystick input in your program, unless it needs two joysticks.

The Example Program

The "C" program presented here allows drawing using an analog joystick. It is intended to be instructional, not necessarily useful. It was created from an instructional program I wrote on how to open screens and windows, and on drawing lines and text to the window.

Note that there is no averaging in the draw routine to show the effects of noise in the joystick readings. An averaging routine would reduce this effect dramatically. Depending on the machine it is connected to, the positioning accuracy in the upper left corner (low counter readings) is probably much greater than in the lower right corner (high readings).

The program itself contains enough comments to document its operation. I hope you will use this to launch a new era for the Amiga, one in which analog joystick support is as prevalent as digital joysticks currently are.

Using the program is simple. The joystick moves a colored spot around the screen. Holding down button #1 will leave a trail of colored spots as the joystick moves. Button #2 changes the color once for every time it is pressed. The colors cycle through the 4 Workbench colors.

This program will compile for Manx (large and small integers), as well as Lattice. Manx users use the following:

```
cc joydemo.c
cc joydriv.c
as vbrtn.a
ln joydemo.o joydriv.o vbrtn.o -lc
```

Lattice users need to edit the vbrtn.a file to include a "csect" statement as documented in the file itself. Then do the following:

```
lc joydemo.c
lc joydriv.c
asm vbrtn.a
blink lib:c.o,joydemo.o,joydriv.o,vbrtn.o to joydemo
    lib lib:lc.lib,lib:amiga.lib
```

Simply run the program by typing "joydemo". Use the mouse pointer to click on the close box to end the demonstration. I hope you enjoy this "new" capability of your Amiga.

Note 1: The Amiga Hardware Manual states that the joystick resistance should be 490KOhms (490 thousand Ohms). In reality, this value is insufficient to prevent the capacitor from charging before 255 scan lines have occurred.

Listing One
AJoystick.h

```
/*********************************************************/
/* Copyright (c) 1989, David Kinzer, All Rights Reserved */
/*                                                       */
/* Permission hereby granted to redistribute this        */
/* program in unmodified form in a not for profit manner.*/
/*                                                       */
/* Permission hereby granted to use this software freely */
/* in programs, commercial or not.                       */
/*                                                       */
/*********************************************************/
/*                                                       */
/* AJoystick.h                                           */
/*                                                       */
/* Include file for using Analog Joystick Routines       */
/* AJOYUNITx is used for OpenAJoystick and ReadAJoystick */
/* read calls                                            */
/*********************************************************/

#define AJOYUNIT0   1L
#define AJOYUNIT1   2L

/* UxBySINGLE is used for OpenAJoystick calls to specify */
/*            single trigger on the button press         */

#define U0B1SINGLE  0x0100L
#define U0B2SINGLE  0x0200L
#define U0B3SINGLE  0x0400L
#define U0B4SINGLE  0x0800L
#define U1B1SINGLE  0x1000L
#define U1B2SINGLE  0x2000L
#define U1B3SINGLE  0x4000L
#define U1B4SINGLE  0x8000L


/* Data from ReadAJoystick is returned to an AJoyData   */
/* structure                                            */

struct AJoyData {
   unsigned short x;
   unsigned short y;
   unsigned char button1;
   unsigned char button2;
   unsigned char button3;
   unsigned char button4;
};

/* button data will be one of the following             */
```

```
#define BUTTONDOWN  -1
#define BUTTONUP    0

/* End: AJoystick.h                                          */
```

Listing Two
JoyDemo.c

```
/*********************************************************/
/*             ANALOG JOYSTICK DEMO                      */
/*                                                       */
/* Copyright (c) 1989, David Kinzer, All Rights Reserved */
/*                                                       */
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/* program in unmodified form in a not for profit manner.*/
/*                                                       */
/* Permission hereby granted to use this software freely */
/* in programs, commercial or not.                       */
/*                                                       */
/*********************************************************/
/*                                                       */
/* JoyDemo.c                                             */
/*                                                       */
/*    This program demonstrates the use of an Analog     */
/* Joystick input device on the Amiga (tm) Computer.     */
/* This program also demonstrates the use of libraries,  */
/* screens, and windows.                                 */
/*********************************************************/


/* The following includes some header files which define
   some types and structures used by this program.  Note
   that these include files will themselves include more
   files so that everything they need is also included.  */

#include <exec/types.h>
#include <exec/memory.h>
#include <intuition/intuition.h>

/* Include our own defines for the Joystick portion of
   the program. The use of quotes around the include
   file name tells the compiler to  look in the current
   directory for the specified file.  If not found, the
   compiler will look in the default library.            */

#include "ajoystick.h"

/* The following variables are required to use the
   libraries.  The libraries are loaded into ram so many
   programs can use them at the same time.   This
   reduces duplication and therefore reduces the ammount
   of ram needed for multitasking.  These variables are
   pointers to the base of the library entry point.  They
   must be global variables so the 'C' library routines
   (which call the actual Amiga library routines) can
   find them during the linking process.  The 'C' library
   routine adds an offset to this pointer and goes to the
   subroutine located there.                             */

struct IntuitionBase *IntuitionBase;
struct GfxBase *GfxBase;

/* The following will be used during the open library to
   ask for a particular revision or greater in the
   library.  A value of Zero says open any revision.
   This would be useful if you used one of the new version
   1.2 routines which did not exist in V1.1.  If you
   were to call a non-existant routine, the system will
   crash.                                                */

#define INTUITION_REV 0L
#define GRAPHICS_REV 0L

/* Here we define the height of the title bar on a
   window so our program will be able to skip over
   that space, as well as the width of the  window
   boarders.                                             */

#define TITLEHEIGHT 10L
#define BOTTOMWIDTH 1L
#define LEFTWIDTH   2L
#define RIGHTWIDTH  2L

/* Here is where we will define the font that we will
   use for our display.  It defines the font that will
   be used by the text function for rendering in any
   window on our screen.                                 */

struct TextAttr MyFont =
   {
   (STRPTR)"topaz.font",  /* Font Name */
   TOPAZ_EIGHTY,          /* Font Height */
   FS_NORMAL,             /* Style */
   FPF_ROMFONT,           /* Preferences */
   };
```


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```
/* Next we set up the data structure which opens the
   screen.  Notice we include the address of our font
   structure in this structure.                          */

struct NewScreen OurScreen =
   {
   0,                /* the left edge has to be zero     */
   0,                /* top edge, start at top of screen */
   640,              /* Width, we want High Resolution   */
   200,              /* Height, we want non-interlace    */
   2,                /* Depth, Two Planes, 4 colors      */
   0,1,              /* DetailPen and BlockPen specs     */
   HIRES,            /* Let's go for High Res            */
   CUSTOMSCREEN,     /* screen type, not the Workbench   */
   &MyFont,          /* use the font we said to          */
   (STRPTR)"Joystick Screen",/* Screen name, in title bar*/
   NULL,             /* screen gadget                    */
   NULL,             /* No custom Bitmap                 */
   };


/* OK, here comes the program.                           */

VOID main()
{
/* The following are used to open the screen and window. */
struct Screen *Screen_ptr;
struct NewWindow OurWindow;
struct Window *Window_ptr;

/* The following variables are used in the demo loop.    */
struct AJoyData *JP;
long pcolor;
struct message *msgptr = NULL;
long old_x = -1;
long old_y = -1;
long old_color = 0;

/* Declare the return type of the functions used.        */
APTR OpenLibrary(),OpenScreen(),OpenWindow();
APTR AllocMem(),GetMsg();

/* Declare our function to keep Lattice (tm) happy.      */
VOID DrawBox();

/* Open the Intuition library.  The result returned by
```

(continued)

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```
    this call is a pointer to the jump table of the
    Intuition library.  This call will load the library
    from disk if it is not already loaded.  If this call
    returns zero, something is wrong and Intuition is
    not available to us.  If this is true, attempting to
    use the library will cause the machine to crash, so
    we should exit the program.                          */

    IntuitionBase = (struct IntuitionBase *) OpenLibrary(
            (STRPTR)"intuition.library",INTUITION_REV);
    if (IntuitionBase == NULL)
       exit(FALSE);

 /* Same with the Graphics Library */

    GfxBase = (struct GfxBase *)OpenLibrary((STRPTR)
              "graphics.library",GRAPHICS_REV);
    if (GfxBase == NULL)
       exit(FALSE);


 /* Now it is time to get our screen.  The OpenScreen call
    does a bunch of neat stuff for us like getting chip
    memory for the screen and RastPort structures.  We
    could do all this stuff for ourselves, but why?      */

    Screen_ptr = (struct Screen *)OpenScreen(&OurScreen);
    if (Screen_ptr == NULL)
       exit(FALSE);


 /* We are going to fill out the window structure in order
    so we can open a window on our new screen.  Our window
    will have a few gadgets for us to play with.  Since
    one of the IDCMP flags is set, this program will open
    a message port which we will monitor to see when the
    window should be closed.                             */

    OurWindow.LeftEdge = 20;
    OurWindow.TopEdge = 20;
    OurWindow.Width = 512+LEFTWIDTH+RIGHTWIDTH;
    OurWindow.Height = 128+TITLEHEIGHT+BOTTOMWIDTH;
    OurWindow.DetailPen = 0;
    OurWindow.BlockPen = 1;
    OurWindow.Title = (STRPTR)"Joystick Drawing Window";
    OurWindow.Flags = WINDOWCLOSE | SMART_REFRESH
                      | ACTIVATE  | WINDOWDRAG
                      | WINDOWDEPTH | NOCAREREFRESH;
    OurWindow.IDCMPFlags = CLOSEWINDOW;
    OurWindow.Type = CUSTOMSCREEN;
    OurWindow.FirstGadget = NULL;
    OurWindow.CheckMark = NULL;
    OurWindow.Screen = Screen_ptr;
    OurWindow.BitMap = NULL;
    OurWindow.MinWidth = 512+LEFTWIDTH+RIGHTWIDTH;
    OurWindow.MinHeight = 128+TITLEHEIGHT+BOTTOMWIDTH;
    OurWindow.MaxWidth = 512+LEFTWIDTH+RIGHTWIDTH;
    OurWindow.MaxHeight = 128+TITLEHEIGHT+BOTTOMWIDTH;

 /* Now open the window on our screen. */

    Window_ptr = (struct Window *)OpenWindow(&OurWindow);
    if (Window_ptr == NULL)
       exit(FALSE);

 /* Move the graphics pen (an imaginary thing) to where
    we would like our text to be drawn.                  */

    Move(Window_ptr->RPort,20L,20L);

 /* Now let's send some text out to the screen */

    Text(Window_ptr->RPort,(STRPTR)"Joystick Draw",13L);

 /* Let's outline the text with a box, this is our own
    function                                             */

    DrawBox(Window_ptr->RPort,1,12,22,16,128);

 /*                                                      */
 /* Now we get to the Analog Joystick part.              */
 /*                                                      */


 /* Define some conversion functions that change the
    0-255 input values into the coordinates for drawing
    into our window.                                     */

 #define fx(x) (x / 128 + LEFTWIDTH)
 #define fy(y) (y / 512 + TITLEHEIGHT)

 /* Allocate some public memory for a data structure that
    the ReadAJoystick will return the data to us in.  It
    is not necessary for this to be public for this
    example program since we are linking the driver with
    our program, but should this become a library, this
    would be required. (It doesn't hurt to think ahead
    some.)                                               */

    JP = (struct AJoyData *)AllocMem((long)sizeof
            (struct AJoyData),MEMF_PUBLIC);

 /* Continue only if the allocate worked.               */

    if (JP) {

 /* Call the open routine of our driver.  We are
    requesting Unit 1 (the  right mouse port), and we
    want it to give us a single pressed indication for
    each time button 2 is pressed. (This means button
    1 [as well as 3 and 4 if your joystick is so
    equipped] will report pressed as long as the user
    holds it down.)                                      */

       if (OpenAJoystick(AJOYUNIT1 | U1B2SINGLE)) {

 /* Set the graphics pen to color 1 (actual color
    depends upon preferences)                            */

          pcolor = 1;
          SetAPen(Window_ptr->RPort,pcolor);

 /* Loop until user clicks close box on the window.     */

          do {

 /* Read settings of the Analog joystick and buttons.   */

             ReadAJoystick(AJOYUNIT1,JP);

 /* Check button 2.  Button 2 indicates the user wants
    to change the color that he is drawing with.  Note
    that if we had not specified U1B2SINGLE on the open
    call, the color would cycle as long as the user held
    the button down.  This would make it difficult for
    him or her to select a color.  If the button is
    pressed, change the color variable and write the
    new color on the display.                            */

             if (JP->button2 != BUTTONUP) {
                pcolor = (pcolor+1) % 4;
                SetAPen(Window_ptr->RPort,pcolor);
```

```
            WritePixel(Window_ptr->RPort,old_x,old_y);
            WritePixel(Window_ptr->RPort,old_x+1,old_y);
         }

/* If the joystick position has moved, we need to decide
   if are to clean up the screen where we were drawing.
   If the button is pressed, we leave the current color
   on the screen.  This is done in conjunction with the
   statement below.  If the old color matches the current
   color, we just leave it.  If it does not match, we
   replace it with the color that used to be there.  We
   then move to the new position, save the color that
   was there, and write out the new color.                */

         if ((fx(JP->x) != old_x) ||
             (fy(JP->y) != old_y)) {
            if (pcolor != old_color) {
               SetAPen(Window_ptr->RPort,old_color);
               WritePixel(Window_ptr->RPort,old_x,
                  old_y);
               WritePixel(Window_ptr->RPort,old_x+1,
                  old_y);
               SetAPen(Window_ptr->RPort,pcolor);
            }
            old_x = fx(JP->x);
            old_y = fy(JP->y);
            old_color = ReadPixel(Window_ptr->RPort,
               old_x,old_y);

            WritePixel(Window_ptr->RPort,old_x,old_y);
            WritePixel(Window_ptr->RPort,old_x+1,old_y);
         }

/* If button 1 is pressed, the user wants to draw in the
   window.  As long as the button is held, points will
   change to the current color.  We do this by changing
   the saved color to the current color so when the
   joystick is moved the color is retained.               */

         if (JP->button1 != BUTTONUP) {
            old_color = pcolor;
         }

/* Check for any messages coming in to our program.  The
   GetMsg routine returns a pointer to the first message
   in the queue, if any.  If there are no messages, it
   returns a NULL.                                        */

      } while (!(msgptr = (struct message *)
         GetMsg(Window_ptr->UserPort)));

/* We looped until a message arrived at the IDCMP port.
   Since we only asked for one type of message, we are
   assured that it is the close window message.  If we
   had asked for more types, we would have to decode it
   to see what type of message it is.  For our case, we
   just reply the  message, clean up, and we're done.  */

      ReplyMsg(msgptr);

/* Turn off the joystick routines.                        */

      CloseAJoystick();
   }

/* Free up the memory we allocated for our data
   structure.                                             */

   FreeMem(JP,(long)sizeof(struct AJoyData));

}


/* Close up the window, and then the screen.  Then we
   are done.                                              */

CloseWindow(Window_ptr);
CloseScreen(Screen_ptr);

exit(TRUE);

}


/* Here we have our own function which draws a box on
   the screen.  It calls an Amiga function called
   PolyDraw which draws polygons on the display area.
   We change the color of the pen to what is desired,
   draw the box and set it back.  We also preserve the
   graphics pen location.                                 */


VOID DrawBox(RP,PenColor,Top,Bottom,Left,Right)

struct RastPort *RP;
int PenColor,Top,Bottom,Left,Right;
```


We take a byte out of the price



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```
{
int OldPenColor,x,y;
short points[4][2];

/* Fill in the points of our box polygon that will
   be used by the DrawPoly function.   The array must
   be made up of 16 bit numbers.                          */

   points [3][0] = Left;
   points [3][1] = Top;
   points [0][0] = Right;
   points [0][1] = Top;
   points [1][0] = Right;
   points [1][1] = Bottom;
   points [2][0] = Left;
   points [2][1] = Bottom;


/* The Amiga routines should include ones to find out
   the current color and location of the graphics pen,
   but it was not to be.  We will just go grab the
   information from the RastPort structure.               */

   OldPenColor = RP->FgPen;
   x = RP->cp_x;
   y = RP->cp_y;

/* Set the pen to what we desire, and move the pen
   to the top left corner of the Box.                     */

   SetAPen(RP,(long)PenColor);
   Move(RP,(long)Left,(long)Top);

/* Draw the Box.                                          */

   PolyDraw(RP,4L,points);

/* And set everything back again.                         */

   SetAPen(RP,(long)OldPenColor);
   Move(RP,(long)x,(long)y);

}


/* End: JoyDemo.c */
```

(continued)

Listing Three
JoyDriv.c

```
/*******************************************************/
/* Copyright (c) 1989, David Kinzer, All Rights Reserved */
/*                                                     */
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/* program in unmodified form in a not for profit manner.*/
/*                                                     */
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/* in programs, commercial or not.                     */
/*                                                     */
/*******************************************************/
/*                                                     */
/* JoyDriv.c                                           */
/*                                                     */
/* Analog joystick interface routines                  */
/*                                                     */
/* This file contains the routines needed to interface   */
/* to an analog joystick.  The routines supplied will    */
/* open, read, and close an analog joystick port.        */
/* Note that in order to use joyport 0 (left mouse port) */
/* the intuition interface will have to be turned off.   */
/*******************************************************/

#include "exec/types.h"
#include "exec/memory.h"
#include "exec/interrupts.h"
#include "hardware/custom.h"
#include "hardware/intbits.h"

#include "ajoystick.h"

#define POTBITS0        0x0F01
#define POTBITS1        0xF001
#define INPUT0          0x0000
#define INPUT1          0x0000
#define INMASK0         0x0A00
#define INMASK1         0xA000

struct joydata {
   struct {
      unsigned short x;
      unsigned short y;
      char b1;
      char b2;
      char b3;
      char b4;
      char eb1;
      char eb2;
      char eb3;
      char eb4;
   } unit0,unit1;
   APTR pgbase;
   long unitflags;
};

APTR PotgoBase = 0;                /* Library base        */
long gotpotgo = 0;                 /* Potgo register bits */
                                   /*  we are using       */
struct joydata *JoyData = NULL;    /* Pointer to data     */
                                   /*  passing area       */
struct Interrupt *VBRData = NULL; /* Pointer to VERTB    */
                                   /*  interrupt node     */
extern VOID vbserver();


/* Open Analog Joystick Routine */

struct joydata *OpenAJoystick(units)
long units;
{
long wantpotgo, AllocPotBits();
long inputbits, inputmask;
APTR OpenResource(), AllocMem();


   /* reject open if already opened. */

   if (JoyData) {
      return NULL;
   }

   /* Open potgo resource.  The resource controls        */
   /* allocation and writing of the potgo register.      */
   /* Note: There is no corresponding CloseResource call */
   /*       in the Amiga.                                */

   PotgoBase = OpenResource((STRPTR)"potgo.resource");
   if (!PotgoBase) {
      return NULL;    /* Return error if potgo.resource */
                      /* is not available.              */
   }

/* figure out which bits we need */

wantpotgo = 0;
inputbits = 0;
inputmask = 0;

if (units & AJOYUNIT0) {
   wantpotgo |= POTBITS0;
   inputbits |= INPUT0;
   inputmask |= INMASK0;
}

if (units & AJOYUNIT1) {
   wantpotgo |= POTBITS1;
   inputbits |= INPUT1;
   inputmask |= INMASK1;
}

/* Do we want anything?  If not, return error, since */
/* there is probably an error in the call.           */

if (!wantpotgo) {
   return NULL;
}


/* Allocate the bits that we need from the potgo  */
/* resource.                                      */

gotpotgo = AllocPotBits(wantpotgo);

/* See if we got what we needed. If not, return error */

if (wantpotgo != gotpotgo) {
   FreePotBits(gotpotgo); /* give back allocated bits */
   return NULL;
}

/* Since we don't know what the hardware was set to   */
/* before we got it, we shall set the analog joystick */
/* bits to inputs like we want.                       */

WritePotgo(inputbits,inputmask);

/* Now that we have the hardware, we shall set up our */
/* VERTB (vertical blanking) interrupt server routine.*/
/* We get some Public memory for a shared data area   */
/* between the server and the ReadAJoystick routine.  */
/* Then we set up an interrupt structure which allows */
/* our server to become a part of the Amiga operating */
/* system.                                            */

JoyData = (struct joydata *)AllocMem((long)sizeof
          (struct joydata),MEMF_PUBLIC);
if (!JoyData) {       /* error if we can't get memory */
   FreePotBits(gotpotgo); /* give back allocated bits */
   return NULL;
}

JoyData->pgbase = PotgoBase;      /* send potgobase to */
                                  /*  vertb server     */
JoyData->unitflags = units;       /* send units to     */
                                  /*  vertb server     */

JoyData->unit0.x = 0x8000;        /* fill in some      */
JoyData->unit0.y = 0x8000;        /*  dummy values     */
JoyData->unit0.b1 = 0;
JoyData->unit0.b2 = 0;
JoyData->unit0.b3 = 0;
JoyData->unit0.b4 = 0;
JoyData->unit0.eb1 = 0;
JoyData->unit0.eb2 = 0;
JoyData->unit0.eb3 = 0;
JoyData->unit0.eb4 = 0;
JoyData->unit1.x = 0x8000;
JoyData->unit1.y = 0x8000;
JoyData->unit1.b1 = 0;
JoyData->unit1.b2 = 0;
JoyData->unit1.b3 = 0;
JoyData->unit1.b4 = 0;
JoyData->unit1.eb1 = 0;
JoyData->unit1.eb2 = 0;
JoyData->unit1.eb3 = 0;
JoyData->unit1.eb4 = 0;

VBRData = (struct Interrupt *)AllocMem((long)sizeof
          (struct Interrupt),MEMF_PUBLIC);
if (!VBRData) {       /* error if we can't get memory */
   /* give back memory and allocated potgo bits */
   FreeMem(JoyData,(long)sizeof(struct joydata));
   FreePotBits(gotpotgo);
   return NULL;
}


/* Fill in the blanks of the Interrupt structure */
```

```
    VBRData->is_Node.ln_Type = NT_INTERRUPT;
    VBRData->is_Node.ln_Pri = 10;
    VBRData->is_Node.ln_Name = "VERTB for Analog Joystick";
    VBRData->is_Data = (APTR)JoyData;
    VBRData->is_Code = vbserver;

    /* And, finally, add interrupt routine to Operating  */
    /* System.                                           */

    AddIntServer(INTB_VERTB,VBRData);

    /* Return pointer to data, in case user wants to go  */
    /* directly to the data structures.                  */

    return JoyData;

}


/* Close Analog Joystick routine.                        */
/* Note: Since the Units are closely intertwined, I      */
/*       decided to close all open units with one call.  */
/*       (since you had to open them with one call       */
/*       anyway).                                        */

long CloseAJoystick()
{

    /* Are we actually open? Error if not */

    if (!JoyData) {
       return 0;
    }

    /* Shut off VERTB routine */

    RemIntServer(INTB_VERTB,VBRData);

    /* Free up memory */

    FreeMem(JoyData,(long)sizeof(struct joydata));
    FreeMem(VBRData,(long)sizeof(struct Interrupt));

    /* Give back allocated potgo bits */

    FreePotBits(gotpotgo);

    /* Set Flag so we don't read bad data */

    JoyData = NULL;

    /* return success */

    return 1;
}


/* Joystick Read routine                                 */
/* Note: Reads values left by last VERTB interrupt.      */
/* Note: Data is stale until first interrupt comes along.*/
/* Note: Only one Unit can be read at a time.            */

struct AJoyData *ReadAJoystick(unit,UserDataPtr)
long unit;
struct AJoyData *UserDataPtr;
{

    /* Are we open? Error if not. */

    if (!JoyData) {
       return NULL;
    }

    /* Is this unit open? Error if not */

    if (!(JoyData->unitflags & unit)) {
       return NULL;
    }

    /* Get data for unit and place in requestor's data   */
    /* structure. (Should be public memory.)             */

    if (unit == AJOYUNIT0) {

       UserDataPtr->x = JoyData->unit0.x;
       UserDataPtr->y = JoyData->unit0.y;

       if (JoyData->unitflags & U0B1SINGLE) {
          UserDataPtr->button1 = JoyData->unit0.eb1;
          JoyData->unit0.eb1 = 0;
       } else
          UserDataPtr->button1 = JoyData->unit0.b1;

       if (JoyData->unitflags & U0B2SINGLE) {
          UserDataPtr->button2 = JoyData->unit0.eb2;
          JoyData->unit0.eb2 = 0;
       } else
          UserDataPtr->button2 = JoyData->unit0.b2;

       if (JoyData->unitflags & U0B3SINGLE) {
          UserDataPtr->button3 = JoyData->unit0.eb3;
          JoyData->unit0.eb3 = 0;
       } else
          UserDataPtr->button3 = JoyData->unit0.b3;

       if (JoyData->unitflags & U0B4SINGLE) {
          UserDataPtr->button4 = JoyData->unit0.eb4;
          JoyData->unit0.eb4 = 0;
       } else
          UserDataPtr->button4 = JoyData->unit0.b4;

    } else if (unit == AJOYUNIT1) {

       UserDataPtr->x = JoyData->unit1.x;
       UserDataPtr->y = JoyData->unit1.y;

       if (JoyData->unitflags & U1B1SINGLE) {
          UserDataPtr->button1 = JoyData->unit1.eb1;
          JoyData->unit1.eb1 = 0;
       } else
          UserDataPtr->button1 = JoyData->unit1.b1;

       if (JoyData->unitflags & U1B2SINGLE) {
          UserDataPtr->button2 = JoyData->unit1.eb2;
          JoyData->unit1.eb2 = 0;
       } else
          UserDataPtr->button2 = JoyData->unit1.b2;

       if (JoyData->unitflags & U1B3SINGLE) {
          UserDataPtr->button3 = JoyData->unit1.eb3;
          JoyData->unit1.eb3 = 0;
       } else
          UserDataPtr->button3 = JoyData->unit1.b3;

       if (JoyData->unitflags & U1B4SINGLE) {
          UserDataPtr->button4 = JoyData->unit1.eb4;
          JoyData->unit1.eb4 = 0;
       } else
          UserDataPtr->button4 = JoyData->unit1.b4;

    } else return NULL;  /* Error, not a recognised unit */

    /* return success */

    return UserDataPtr;

}

/* End: JoyDriv.c */
```

Listing Four
VBRtn.a

```
*********************************************************
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*                                                       *
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* program in unmodified form in a not for profit manner.*
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*                                                       *
*********************************************************
```

(continued)

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```
*********************************************************
* VBRtn.a                                               *
*                                                       *
* Vertical Blanking Routine for analog joystick support.*
* This routine reads the joyport hardware during every  *
* vertical blanking interrupt and stores the joystick   *
* data for use by the read routine.                     *
*********************************************************

* The ordering of the buttons is sortof taken from the
* RKM hardware manual (buttons 3 and 4 are not defined
* there)
*
* when reading from the joyport it is  xxxxxx13xxxxxx24
* where 1 & 2 are obtained directly, 3 is obtained by 1
* eor 3, and 4 is obtained by 2 eor 4.
*
*

* Lattice (tm) users need to remove the comment asterisk
* from the following line to make the assembler happy

*       csect   text


regbase equ     $DFF000
joy0dat equ     $00A
pot0dat equ     $012
joy1dat equ     $00C
pot1dat equ     $014

WritePotgo equ -$12


o_U0X       equ     $0          offsets for data passing
o_U0Y       equ     $2           structure
o_U0b1      equ     $4
o_U0b2      equ     $5
o_U0b3      equ     $6
o_U0b4      equ     $7
o_U0eb1     equ     $8
o_U0eb2     equ     $9
o_U0eb3     equ     $a
o_U0eb4     equ     $b

o_U1X       equ     $c
o_U1Y       equ     $e
o_U1b1      equ     $10
o_U1b2      equ     $11
o_U1b3      equ     $12
o_U1b4      equ     $13
o_U1eb1     equ     $14
o_U1eb2     equ     $15
o_U1eb3     equ     $16
o_U1eb4     equ     $17

o_Potbase   equ     $18
o_flags     equ     $1c


   xdef     _vbserver

* We rely on the data area being pointed to by A1 upon
* entry, which the exec does for us.
*
* We can consider D0, D1, A0, A1, A4, A5 and A6 scratch

_vbserver:


    move.l  #regbase,A0         A0 points to hardware base

    btst    #0,o_flags+3(A1)    see if unit 0 open
*                                (btst works on bytes)
    beq     u1                  branch if not

    move.w  pot0dat(A0),D0      save pot data
    move.w  D0,D1
    asl.w   #8,D0
    move.w  D0,o_U0X(A1)
    and.w   #$FF00,D1
    move.w  D1,o_U0Y(A1)

    move.w  joy0dat(A0),D1      get joystick button
*                                positions

    move.b  o_U0b1(A1),D0       do button 1
*                                save previous state
    btst    #9,D1               test to see if pressed
    sne     o_U0b1(A1)          set or clear data element
*                                based on position
    beq.s   u0t1                if not pressed we are done
    tst.b   D0                  was it pressed before?
    bne.s   u0t1                yes, branch
    st      o_U0eb1(A1)         just pressed, set flag
*                                indicating button pressed
u0t1
    move.b  o_U0b2(A1),D0       do button 2
    btst    #2,D1
    sne     o_U0b2(A1)
    beq.s   u0t2
    tst.b   D0
    bne.s   u0t2
    st      o_U0eb2(A1)
u0t2
* The fastest way to do the exclusive or in this case is
* to add 1 to the least significant bit.  If that bit is
* a 1, there will be a carry into the next position.  If
* so, and the next position is a zero, the result will be
* a one.  If the next position is a one, the result is a
* zero.  Obscure, but fast.  Note that this renders all
* other bits useless.  We use a byte add here to prevent
* ruining the button 2 and 4 data in the upper byte.
    add.b   #1,D1               do button 3
    move.b  o_U0b3(A1),D0
    btst    #1,D1
    sne     o_U0b3(A1)
    beq.s   u0t3
    tst.b   D0
    bne.s   u0t3
    st      o_U0eb3(A1)
u0t3
    add.w   #$100,D1            do button 4
    move.b  o_U0b4(A1),D0       (same eor scheme used)
    btst    #9,D1
    sne     o_U0b4(A1)
    beq.s   u0t4
    tst.b   D0
    bne.s   u0t4
    st      o_U0eb4(A1)
u0t4


u1
    btst    #1,o_flags+3(A1)    see if unit 1 open
    beq     restart

    move.w  pot1dat(A0),D0      save pot data
    move.w  D0,D1
    asl.w   #8,D0
    move.w  D0,o_U1X(A1)
    and.w   #$FF00,D1
    move.w  D1,o_U1Y(A1)

    move.w  joy1dat(A0),D1      get joystick button
*                                positions

    move.b  o_U1b1(A1),D0       do button 1
    btst    #9,D1
    sne     o_U1b1(A1)
    beq.s   u1t1
    tst.b   D0
    bne.s   u1t1
    st      o_U1eb1(A1)
u1t1
    move.b  o_U1b2(A1),D0       do button 2
    btst    #1,D1
    sne     o_U1b2(A1)
    beq.s   u1t2
    tst.b   D0
    bne.s   u1t2
    st      o_U1eb2(A1)
u1t2
    add.b   #1,D1
    move.b  o_U1b4(A1),D0       do button 4
    btst    #1,D1
    sne     o_U1b4(A1)
    beq.s   u1t4
    tst.b   D0
    bne.s   u1t4
    st      o_U1eb4(A1)
u1t4
    add.w   #$100,D1            do button 3
    move.b  o_U1b3(A1),D0
    btst    #9,D1
    sne     o_U1b3(A1)
    beq.s   u1t3
    tst.b   D0
    bne.s   u1t3
    st      o_U1eb3(A1)
u1t3
restart
    move.l  #1,D0
    move.l  D0,D1
    move.l  o_Potbase(A1),A6        Call WritePotgo
    jsr     WritePotgo(A6)
    move.l  #0,D0
    rts

    end

* End: VBRtn.a
```

•AC•

C Notes from the C Group

Planned Programming

by Stephen Kemp

Good programs usually begin with a plan. Even simple utilities or programming examples deserve forethought. Sometimes taking a few minutes to jot down the objective(s) of a program can spell the difference between the program performing as required, or missing by a mile. Case in point: I recently talked with a programmer friend who told me about a utility program he had just finished. While programming, he added a few extra options he didn't consider at the beginning. It just seemed like the thing to do. After all, he was writing the program for himself. The program worked perfectly. However, it didn't perform the task he first intended to handle. Unknowingly, he compromised his objective, and had to write another program to achieve the desired goal.

Believe it or not, this is not all that uncommon. Don't be surprised if you find yourself in a similar situation. Sometimes even the best plans can miss the mark. Still, a few simple notes (mental notes are okay, but written are best) can usually keep you on track. Plans help to keep you focused.

At this juncture I have to admit that I am not usually a "full project planner" using flow charts, report diagrams, and design specs. Likewise, I am not trying to convince you to be or not be this thorough. If you are like me, you would rather spend your time programming, not planning. However, I do recommend that everyone at least write down program goals before beginning. You'll be surprised how much even the simplest plans can help.

When designing a program from scratch, many things have to be considered. What will the program do? Who is going to use it? How often? After you have been writing programs for a while, questions like these will always be the first ones asked (especially when you write commercial software). Most designers will tell you to start planning by first establishing what the program is to accomplish. Next, design the interface (what the users will see). Finally, set forth the detailed specifications for the program. These are just the general steps used to design programs. But another step needs to be considered—establishing what the program does not have to do. You must set limitations.

Yes, I said limitations. Believe it or not, setting program limitations is probably the hardest thing about planning a program (even simple ones). This may sound odd, but it is true. This step should actually overlay the entire design phase. Without setting limitations, you may become bogged down in areas that ultimately mean little, if anything, to the actual goal (a la my friend's story).

If you work as a programmer for someone, it can be crucial to have them explicitly state the limitations and expectations. Why? Because as a programmer, you will be judged by how you use the allocated time to achieve the objectives. My boss would like programs that can do everything any user would ever want them to do, and that don't make mistakes even if a 3-year-old is at the keyboard. After my boss explains the objecttives of such a task, the program would take 10 years to write. By then it would be obsolete, so my boss usually decides which areas he wants me to spend my time on, and which to forget.

Even if you work for yourself, you will have to set limitations. Planning can help you do this. If you do not like the term "limitations", think of it as stating exactly what the program will support. Before including anything that is not on the list, stop and carefully consider whether it is warranted.

I do not want to give you the impression that programs should only work a certain way and only for certain people. Error handling and things of this nature have to be planned for too. Here, though, I want to focus attention on the specific "functions" that a program, executed in the proper fashion, is or is not expected to perform.

At this point, you may be thinking I am crazy, but let's look at a simple example and see what can happen. First we need a simple objective. Suppose my boss walks in and hands me this note:

"I need to be able to search my source file to see if I have specified any "include" statements by searching for the word #include ."

Writing a program to achieve this objective is fairly simple, especially if you know the specific file and the string for which to search. In fact, here is the program.

```
/* This program will search the named program for the
occurrence */
/* of the word #include.  If it is found it will say yes,
otherwise*/
/* it will not print anything */

#include "stdio.h"

main()
{
   FILE *fopen(), *fp;
   char buffer[100];
   char *cp;

   if ((fp = fopen("LOOK.C","r")) != NULL){
/* open the file in question*/
      while ( !feof(fp) ){
 /* while not at the end */
         if (fread(buffer, sizeof(buffer), 1, fp) == 0)
/* read a line */
            break;
         for( cp = buffer; *cp != '\0' ; cp++ ){
/* search the line*/
            if (strncmp(cp,"#include",strlen("#include")) ==
0){
               printf("Yes\n");
/* found the word */
               goto done;
/* get out early */
            }
         }
      }
done:
/* early out label */
      fclose(fp);
/* close opened file */
   }
   exit(0);
/* program exits */
}
```

But wait a minute! Is this really what he wanted? By doing a little planning, we might develop a useful utility. In fact, he might expect one! If you received this criteria from a manager, it will be important to know the real objective. To demonstrate how important a few planning notes can be, let me list several things that this program may (or may not) be expected to support. While reading through the list you will undoubtedly think of a few items I did not include. If so, then you are beginning to understand how important planning can be.

- Should it support several named files in one search?
- Does it need to support "wildcard" file names?
- How do we indicate the file that is currently being searched?
- Will file names be entered via command line or prompted by the program?
- Should it be able to search "binary" files?
- Will the search criteria be a single "word" or a string?
- Should it handle multiple search criteria?
- Will this be entered via command line or prompted by the program?
- Should we be able to search for binary data?
- How about wildcard searches? (i.e., anything starting with "cod").
- Is searching subdirectories or the entire disk required?
- Do we support searching by case and/or case insensitive?
- How do we report if the search item is found or not?
- Is printing the line to the screen sufficient? The printer?
- Should the line number be included? The column number?
- Do we pause when the search criteria is found?
- Should it pause after filling the screen?
- How about supporting a "replace" feature?
- Should the program have "internal" instructions if used incorrectly?
- Find all occurrences of the search criteria or stop after 1?

I have just scratched the surface, but I think most of you have grasped the point by now. Every program you start has the potential to be either the program to end all programs, or just a piece of junk. Now although most of the items I have listed here might sound great, you still have to weigh their value against the task (and time) at hand. In my case I would have to take this back to the manager to establish just what he expects. This planning step not only determines what the program will do, but it should help me approximate how long it will take to write the desired code.

Look to the Future

Here's another point that I have not yet made. A simple list like this can also make adding enhancements to your program easier. Even though we'll probably eliminate items from the list, this does not prevent us from including them in the future.

Most programs evolve, especially utility programs. They usually start out performing one or two simple tasks, and later are enhanced to handle more and more features. This is an important point to remember because sooner or later you, or someone after you, will have to make those modifications. With a little forethought, the future can be made easier without having to spend time on those features now.

Now that you have read through the list of potential functions, look back at the program I wrote. Kind of embarrassing, isn't it? But remember, it could have been just as embarrassing if I had tried to include every feature in the list only to discover that my boss expected me to be finished by noon and did not care about half the items.

Be Prepared: Plan

So plan. Plan what your programs will and will not do. If someone else lays a request on your table, get them to agree on the terms. Not having a planning session will not doom your next program to failure, but including one should help prevent such an event. It can be as important to plan programs that are strictly for you as it is to plan for those at work.

Yea, I know, this month's column did not have that much to do with C programming in particular. I included this message because in upcoming months I plan to discuss and help you code your own utility programs. By the way, if you have questions or suggestions about C programming that you would like to see in print, drop me a line. You should be able to reach me either through *Amazing Computing* or on People Link (SKEMP). I cannot make any guarantees, but I am interested in what people are doing with their C programs.

Remember you can learn a lot by experimenting.

•AC•

Fractals Part II

Drawing with Coordinate Systems

Working with coordinate systems—the basics of computer graphics

by Paul Castonguay

To draw anything on your computer screen, you must somehow tell the computer were to draw each dot or pixel in your picture. I have met users who know all the graphics commands available in AmigaBASIC, but complain that they cannot draw impressive patterns or shapes on their Amiga. Complex graphic shapes are often based on algebraic equations. To draw them you must learn how to translate these equations into specific AmigaBASIC commands. This article will start you off in the right direction by discussing the issue which is most fundamental to that process: the coordinate system.

The following definition is simplified in that it is given in everyday language. However it is just as correct as any of the more formal, academic definitions you may see in mathematics books.

Definitions

A coordinate system is a set of rules that everyone agrees to follow when describing the position of any point on a drawing surface, like a piece of paper or a computer screen.

Consider that position information is needed by every graphic command, whether it be to draw a simple point or a complex polygon. Hence the subject of coordinate systems is of great importance.

The computer screen

Your Amiga's screen is divided up into 128,000 little dots or picture elements, called pixels. They are arranged in rows which run across your screen horizontally from left to right. Each row contains 640 pixels. There are 200 such rows, evenly spaced from top to bottom. The position of any pixel on the screen can be specified, or addressed, by knowing two things. First, we must know how far along a row, horizontally from left to right, the pixel is located. This can be any number from 0 to 639, representing the 640 possible positions that a pixel can occupy along a row. Second, we must know in which row, vertically from top to bottom, the pixel is located. This can be any number from 0 to 199, representing the 200 possible rows that a pixel can be in. The AmigaBASIC command:

```
PSET (100,35)
```

lights up the pixel which is 101 pixel positions from the left edge of the screen and 36 rows from the top. Remember, they are numbered starting with zero. The first pixel's number is 0, the second is 1, the third is 2, ..., the one hundred and first is 100. Dumb huh?

The pixel (0,0) is at the very top lefthand corner of the screen. This pixel is special. It is called the ZERO REFERENCE and is the pixel from which the positions of all other pixels are measured. The pixel (639,199) is at the very bottom righthand corner of the screen. It is the pixel with the highest coordinates. You cannot draw a higher point. If you tell your Amiga to PSET (852,364), nothing will happen. You are mistakenly trying to draw outside the screen, out of range. Incidentally, here lies an advantage of AmigaBASIC over a language like C. If you try to draw to the point (852,364) in C, your Amiga will crash! Interactive languages like BASIC are always easier to use than development languages like C.

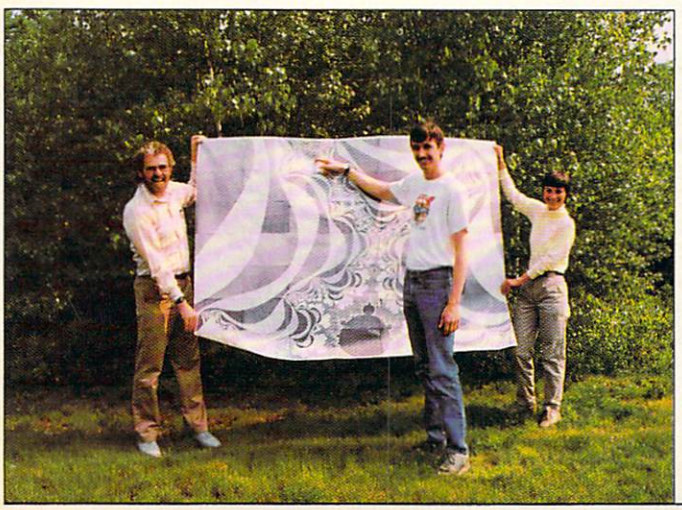
If the horizontal coordinate of one point is higher than that of a second, then the first point must be located to the right of the second. That is a direct result of measuring horizontal coordinates from left to right. You should have no trouble accepting that point (356,62) is located to the right of point (205,62). Since vertical coordinates are measured from top to bottom, the point (315,25) is located above point (315,35).

Amiga coordinates

The above system for describing the position of any pixel on the Amiga's screen is a coordinate system. It consists of a few simple rules which we can use to describe the position of any pixel on the Amiga's screen. In this article I will call this system "Amiga coordinates". In AmigaBASIC, all graphic commands expect to be given position information according to the above rules of Amiga coordinates.

In reality, the above coordinate system is only one of four available on the Amiga, each offering a different number of pixels horizontally, or vertically, across the screen. But let's forget about that for now and work only with the 640 x 200 pixel screen.

Below:
AC's Technical Editor Mike Morrison with Mr. and Mrs. Fractal: Paul and Diane Castonguay



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There are three important points that must be made about the Amiga screen coordinate system:

1. The number of pixels on your screen is not decided by you. It has been fixed by the electronic circuits of your computer.

2. The numbering system used to address each individual pixel is also not decided by you. That was decided by the designers of the Amiga.

3. The Amiga screen coordinate system is something that is known to you and your Amiga, but it is a system completely unknown to the world of mathematics.

The world of mathematics

Long before there were computers or Amigas, mathematicians needed visual representations of mathematical equations. So the scholars of the day invented a coordinate system which everyone could use. Naturally, they made their graphical representations on paper. They called their coordinate system the Cartesian Coordinate System, in honor of the mathematician Rene Descartes.

Cartesian coordinates

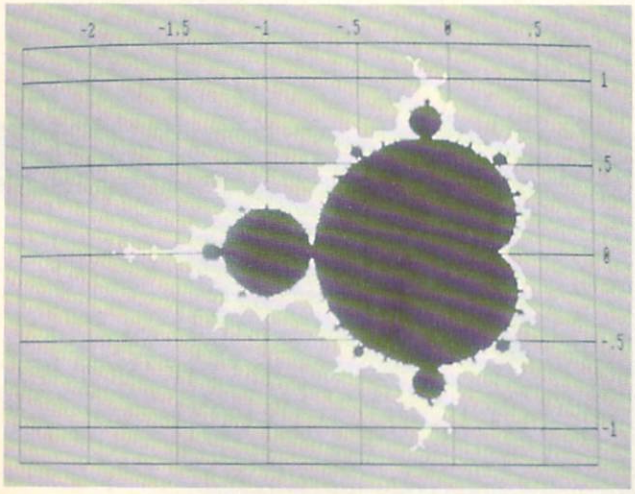
Here are some rules we must agree to follow if we want to use the system:

Imagine your drawing surface, whether paper or computer screen, is divided into an arbitrary number of units, arranged horizontally and vertically. You are free to choose their number. For instance, you could decide to use 1000 units horizontally and 500 units vertically. Choosing the number of horizontal and vertical units is called scaling your drawing surface. Scaling allows you to size your picture so it fits on your drawing surface. Amiga coordinates do not allow for scaling.

Coordinates are measured horizontally from left to right. If one point has a greater horizontal coordinate than a second, then the first point must be located to the right of the second. Point (150,35) is located to the right of point (105,35). That is the same as Amiga coordinates.

Coordinates are measured vertically from bottom to top. This is opposite to Amiga coordinates. In Cartesian coordinates, if one point has a greater vertical coordinate than a second, then the first point must be located above the second.

Figure One:
The Mandlebrot Set



The position of a point on the drawing surface is given by a number pair (x,y) called a coordinate pair, where x represents the point's horizontal position and y represents the point's vertical position. We use letters here as algebraic variables. Although it is popular to use the letter x for the horizontal coordinate and y for the vertical coordinate, you can use any letters you please. In my example programs, I use the letters i and j. The numeric value of these variables can be anything you like. In Amiga coordinates, the position of a pixel is also given by a numbered pair, but its range is restricted to 640 horizontal units and 200 vertical units.

The horizontal distance between any two points is equal to the horizontal coordinate of the point on the right minus the horizontal coordinate of the point on the left. The vertical distance between any two points equals the vertical coordinate of the upper point minus the vertical coordinate of the lower point.

The position of the reference point is arbitrary. This is different from Amiga coordinates. By placing the reference point at different locations on your drawing surface, you can draw points using numbers which are considered out of range in Amiga coordinates. Let's suppose you want to draw the point P(-50,35). In Amiga coordinates you cannot do that. The Amiga will not draw at points represented by negative numbers. Such points are considered out of range. In Cartesian coordinates you can. Just put the reference point somewhere near the righthand edge of the drawing surface. Then, all points located to the left of the reference have horizontal coordinates which are numerically less than zero—negative!

Stop for breath

You can see that there are many similarities between Amiga coordinates and Cartesian coordinates. The basic concept is the same. The positions of things are specified by coordinates. But there are differences, and right now the most important is the fact that in Cartesian coordinates you may choose both the location of the reference point and the number of units across the drawing surface—in other words, the scale.

The cold truth

If you want to draw fancy graphic patterns from mathematical equations in AmigaBASIC, one of the first things you will need to learn is how to convert from the Cartesian coordinate system, in which mathematics is described, to the Amiga coordinate system, in which all the graphic commands are written.

Converting coordinate systems

Suppose I give you an algebraic equation and tell you it has some real interesting properties over a certain range of horizontal and vertical coordinates. Let's use the equation solved by the example program you entered in Fractals Part I (AC vol. 4.3). Can you set up the Amiga to display this equation over any range of coordinates I ask you to?

OK, I want you to draw on your Amiga the example from Part I over a horizontal range of -2.4 to +0.8 and a vertical range of -1.2 to +1.2.

A wiseman once told me, "If you are looking for a solution, make sure you understand the problem." What am I

(continued)

really asking to be done here? I want to draw a picture in which the left edge of the screen has a coordinate of X = -2.4, the right edge X = 0.8, the top edge Y = 1.2, and finally, the bottom edge Y = -1.2. Also, and this is most important, I want to be able to draw all points in between at their proper pixel locations. For example, the point P(-1.6,0) has an X coordinate exactly one quarter of the way between -2.4 and 0.8. If my graphical representation of the equation is done correctly, the horizontal pixel number of that point should be 159. Pixel position 159 is the 160th pixel from the left edge of the screen, one quarter of the total 640 pixels from left edge to right edge. Similarly, all other coordinates of points in your picture, both X's and Y's, must also be translated to their proper pixel position.

Figuring it out

Let's declare some variables for the edges of the screen. It will make the problem easier to think about.

```
xmin = -2.4
xmax =  0.8
ymin = -1.2
ymax =  1.2
```

Variables help because they have such descriptive names. They also make the solution more general, which means that the solution we find to this programming problem today will be usable to solve similar problems in other programs tomorrow.

Horizontal coordinates

Remember, the horizontal distance between any two points is the horizontal coordinate of the point on the right minus the horizontal coordinate of the point on the left. Therefore, the distance between the left and right edges of the screen is:

Screen.Width = xmax - xmin

We know that Amiga coordinates allow only 640 horizontal pixels. Let's calculate the width of one pixel in Cartesian coordinates. Since there are 639 spaces between 640 pixels, I figure that the width of a single pixel is the screen width divided by 639.

```
dx = Screen.Width/639
   = (xmax - xmin)/639
```

Incidently, the notation dx is used often in math books to mean "a small change in x".

Now suppose we let X be any value between xmin and xmax. The distance between any X and the left edge of the screen is the horizontal coordinate of X minus the coordinate of the left edge of the screen, xmin.

Dist.X = X - xmin

We can express that distance in pixels simply by dividing it by dx, the width of one pixel.

```
Pixel.X = Dist.X / dx
        = INT((X - xmin)/dx)
```

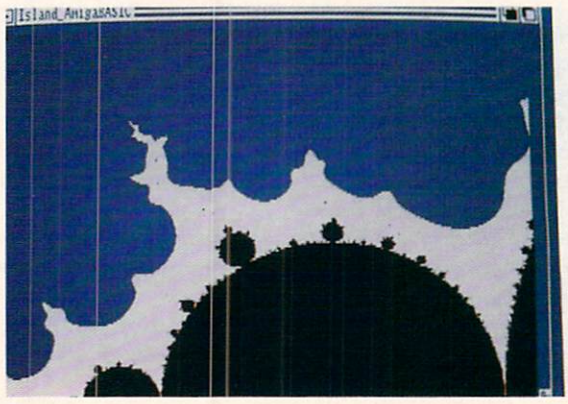
Say it in words. The Pixel number for any X is the distance between X and the left edge of the screen divided by the width of a pixel. We use BASIC's INT() function because pixels have no fractional or decimal parts. Think about it, you cannot have half a pixel. The INT() function causes the fractional part of the calculation to be dropped.

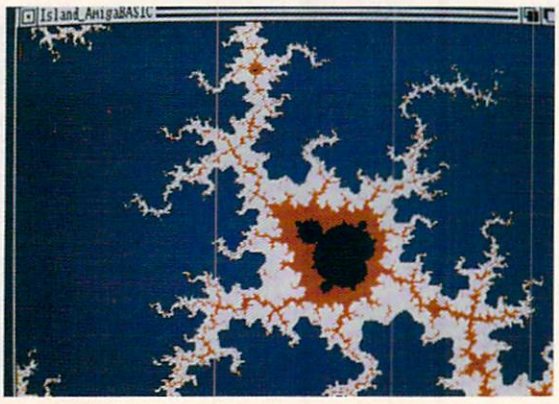
I have been using informative variable names to hold intermediate values because I want to show you the thought process necessary to figure this out. I hope you have found it helpful.

There is now one sticky little item which is difficult to explain and which can cause a lot of frustration if not handled properly.

Think about the term dx. It is the width of one pixel expressed in Cartesian coordinates. In my example, it is equal to about .005. As a result, Cartesian numbers which are very close together will be converted to the same pixel number. Listed below are the horizontal pixel numbers returned by the equation Pixel.X = INT((X - xmin)/dx) for points near the right edge of the screen.

CARTESIAN COORDINATE	AMIGA PIXEL NUMBER
.790	637
.791	637
.792	637
.793	637
.794	637
.795	638
.796	638
.797	638
.798	638
.799	638
.800	639





Left
The Mandlebrot set expanded

Right
The Mandlebrot set and "island molecules"

This formula produced the following results:

CARTESIAN COORDINATE	AMIGA PIXEL NUMBER
.790	637
.791	637
.792	637
.793	638
.794	638
.795	638
.796	638
.797	638
.798	639
.799	639
.800	639

The coordinate .800 is now properly centered in the range of pixel 639.

Vertical coordinates
The height of the screen is:

Screen.Height = ymax - ymin

The height of one pixel is:

```
Pixel.Height = Screen.Height / 199
             = (ymax - ymin)/199
```

Now, suppose we let Y be any value between ymin and ymax. The distance between any Y and the bottom edge of the screen is:

Dist.Y = Y - ymin
(Remember, Cartesian measures from bottom.)

The number of pixels between Y and the bottom of the screen are:

```
Pixel.From.Bottom = Dist.Y / Pixel.Height
                  = INT((Y - ymin)/dy)
```

Again, a small adjustment or shift of dy/2 is needed.

```
Pixel.From.Bottom = INT(((Y - ymin) + dy/2)/dy)
```

But Amiga coordinates require that pixels be measured from the top of the screen, not the bottom. Easy! We calculate:

```
Pixel.From.Top = 199 - Pixels.From.Bottom
               = 199 - INT(((Y - ymin) + dy/2)/dy)
      Pixel.Y = 199 - INT(((Y - ymin) + dy/2)/dy)
```

Another breather

We now have a way to convert from Cartesian coordinates, in which mathematical equations are graphically represented, to Amiga coordinates, in which graphic commands are written. OK, suppose you want to use a graphic command, like PSET. Let's plot the point P(-1.6,0). Here's how you could do it:

```
xmin = -2.4
xmax =  0.8
ymin = -1.2
ymax =  1.2
dx = (xmax - xmin)/639
 dy = (ymax - ymin)/199

        X = -1.6
        Y = 0
Pixel.X = INT(((X - xmin) + dx/2)/dx)
Pixel.Y = 199 - INT(((Y - ymin) + dy/2)/dy)
PSET (Pixel.X, Pixel.Y)
```

Whew!

A better way

The above method works, but it has the disadvantage that every time you want to use the PSET command, you have to retype the two lines containing the conversion calculations. BASIC has a better way. We will use AmigaBASIC's DEF FN() command and create what is called a user-defined function.

Small review

A function calculates something and returns the answer to you. AmigaBASIC has lots of functions. An example is the square root, SQR(). Five multiplied by five equals twenty-five, or equivalently five is the square root of twenty-five. You use the function by putting a number in the parenthesis, like this:

```
Y = SQR(25)
```

The number, 25, is called the argument of the function. The function returns the numerical answer. In this case I stored it in the variable Y. You do not have to store the answer, you can just send it to the screen:

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```
PRINT SQR(25)
```

Or, you can use it in a calculation:

```
PRINT 6*(SQR(25)-2)
```

Most important to us right now is the fact that a function can be used in the PSET command:

```
PSET(SQR(49),SQR(36))
```

The above will plot a point on the screen at pixel position (7,6).

Now wouldn't it be nice if there was a function in the AmigaBASIC language which would convert the positions of points expressed in Cartesian coordinates to Amiga coordinates. If there was, we would not have to write out the calculation lines every time we wanted to plot a point. Well, it doesn't exist. But—you guessed it—we can make such a function.

Making a function

The DEF FN() command is used to create your own special function which, for some silly reason, does not already exist in the AmigaBASIC language. You will be able to use your function just like any other function in AmigaBASIC.

Let's first practice with a simple function. Why not make a function which is the opposite of the SQR() function mentioned earlier. Let's make a SQUARE() function. Here's how it is done:

```
DEF FNSquare(x) = x*x
```

First, the DEF FN part tells your Amiga you are defining a function. It needs to be told these things. Square is the name of the function. Note that you are not allowed to leave a blank space between FN and the name Square. (I hate these rules but I must follow them.) The name Square can be either upper or lowercase letters. Next comes the argument, (x). It is used to pass a number to your function for calculation. It tells your Amiga where to substitute that number in the calculation part of the function definition, the algebraic expression that you want performed. In this case, it's easy. Simply square the number, multiply it by itself, and that's it.

Now, let's use it. Write the following short program:

```
DEF FNSquare(x) = x*x
Y = FNSquare(25)
PRINT "25 squared is";Y
PRINT "Here are some others"
FOR I=1 TO 10
     PRINT I;" squared is";FNSquare(I)
NEXT I
```

Notice that the line containing the function definition had to come first in your program. Otherwise, your Amiga would not have known what FNSquare(25) meant. Dumb, huh?

You can even use this function in the PSET command:

```
PSET( FNSquare(5) ,FNSquare(6) )
```

This will plot a point at location (25,36) in Amiga coordinates.

I'm not through yet. The x in the parenthesis of the DEF FN() command is called a dummy variable. That means you can use the letter x for a variable in other parts of your program and your Amiga will not get confused. If you say:

```
 x = 6
PRINT FNSquare(7)
```

The Amiga will print 49, not 36. The Amiga squares only the number which is passed to it. Even the name Square is available for use as a variable in your program. You can say:

```
Square = 9
PRINT FNSquare(8)
```

and there is no confusion. The Amiga prints 64. You can even say:

```
Square = 11
PRINT FNSquare(Square)
```

and the correct answer, 121, is printed.

Cartesian-to-Amiga function

Now let's define some real functions.

```
DEF FNx(x) = INT(((X - xmin) + dx/2)/dx)
DEF FNy(y) = 199 - INT(((Y - ymin) + dy/2)/dy)
```

These two functions are used to convert from Cartesian coordinates to Amiga coordinates. You can use the Cartesian

```
DEF FNx(x) = INT(((X - xmin) + dx/2)/dx)
DEF FNy(y) = 199 - INT(((Y - ymin) + dy/2)/dy)
```

These two functions are used to convert from Cartesian coordinates to Amiga coordinates. You can use the Cartesian coordinates of the point you want to draw. Simply place those coordinates within the parenthesis of the FNx() and FNy() functions, and then place those functions within the parenthesis of the PSET() command like this:

```
PSET( FNx(X), FNy(Y) )
```

The values of X and Y are converted from Cartesian to Amiga coordinates, and then are passed on to the PSET() graphic command. It all happens automatically.

Always remember that before you use these functions in the PSET() command you must properly write out the function definitions as the first lines of your program. You must also properly initialize all variables used inside those functions before calling the functions:

```
DEF FNx(x) = INT(((X - xmin) + dx/2)/dx)
DEF FNy(y) = 199 - INT(((Y - ymin) + dy/2)/dy)
xmin = -2.4
xmax =  0.8
ymin = -1.2
ymax =  1.2
dx = (xmax - xmin)/639
 dy = (ymax - ymin)/199

i = -1.6
j =  0
PSET(FNx(i),FNy(j))
```

Notice that your Amiga would not get confused if there were a variable in your program called x. In fact, in the example program of this article, I use the variables x and y for equation calculations and the variables i and j for drawing points on the screen. The Amiga knows the difference between the x of a variable in your program, the x in your function definition statement, and the x which is the name of the function.

Another complication

I have one more ugly bit of news for you. Remember how I told you that the Amiga screen had 640 pixels horizontally and 200 rows vertically. Well that was true, but...

When you run a program in AmigaBASIC, the system opens an output window for you. That was one of the high-level advantages of AmigaBASIC that we discussed in Part I. You do not have to do anything special to get this window; it happens automatically, making your job as a programmer much easier. Well, along with this output window you get some extras.

First, you get a window-sizing gadget, located at the bottom righthand corner of the screen. It is used to shrink the output window while the program is running, thus exposing the Workbench to run other programs and allowing for multi-tasking. But the sizing gadget takes up room on the screen and reduces the number of horizontal pixels available to you in Amiga coordinates from 640 to 618.

Second, you get a drag bar, located across the top of your screen. The words "Fractal_AmigaBASIC" appeared in it when you ran Part I's example. The drag bar is used to move the output window around on the Workbench screen, thus exposing other windows behind it. However, like the resizing gadget, it takes up room and reduces the number of rows available to you in Amiga coordinates from 200 to 187. If you didn't know this, your program would still operate. However, all points in your picture which have a horizontal coordinate greater than 617 or a vertical coordinate greater than 186 would get cut off. They are considered out of range.

Now you may say, "So what if the picture is cut off a bit on the right side and the bottom?" Well, if you allow that to happen, then the right edge and the bottom edge of your drawing no longer represent the Cartesian coordinates you wanted them to. In the problem we have been discussing, they would be changed from x = 0.8 to x = .689827856 along the right edge, and from y = -1.2 to y = -1.04321608 along the bottom. We can compensate for this with a change to our DEF FNx(). DEF FNy(), and dx-dy statements:

```
DEF FNx(x) = INT(((X - xmin) + dx/2)/dx)
DEF FNy(y) = 186 - INT(((Y - ymin) + dy/2)/dy)
dx = (xmax - xmin)/617
dy = (ymax - ymin)/186
```

And that's it! These are the actual functions we will use.

Of course, you may recognize those function definitions from my article in AC vol. 4.3 They were mentioned as two program lines that were needed in AmigaBASIC, but not needed in TRUE BASIC.

What? You mean that in TRUE BASIC all this talk about

(continued)

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what Cartesian coordinates are and how to scale a drawing surface. But you can forget about the two DEF FN() function definition lines. They are not needed. More importantly, the effort needed to program them is saved.

TRUE BASIC

This is how to scale a screen in TRUE BASIC for the above problem:

window -2.4, 0.8, -1.2, 1.2

TRUE BASIC now regards the left edge of the screen as:

```
x = -2.4
```

the right edge as:

```
x = 0.8
```

the bottom edge as:

```
y = -1.2
```

and the top edge as:

```
y = 1.2
```

You will notice from the example listing that I still use the descriptive variable names for the screen edges. That's good practice.

```
xmin = -2.4
xmax = 0.8
ymin = -1.2
ymax = 1.2
set window xmin, xmax, ymin, ymax
```

If at a later time you want to modify the coordinates over which a program operates, you will not have to worry about getting mixed up over which numbers of the set window command represent horizontal coordinates and which numbers represent vertical coordinates. Their descriptive names tell it all.

I had better announce TRUE BASIC's command, which does the same thing as AmigaBASIC's PSET(). It's called plot points, and here is how it is used:

plot points: x, y

In the above problem, to draw the point P(-1.6,0) you could send the coordinates -1.6 and 0 directly to the graphics command.

plot points: -1.6, 0

Or, you could use variables:

```
let x = -1.6
let y = 0
plot points: x, y
```

Another advantage

Remember how in AmigaBASIC I had to make that final adjustment to the DEF FN() statements, changing the number of pixels from 639 to 617, and from 199 to 186. Well, in TRUE BASIC you can forget about that. TRUE BASIC always guarantees that the edges of the visible drawing area have the coordinates you asked for in the set window command. Even if you want to use a window with gadgets and drag bars, you do not have to make minor modifications to your program like you do in AmigaBASIC. Now that's what a graphic-oriented language should do!

World Coordinates

A computer language that has the ability to refer to positions on the screen directly in Cartesian coordinates, rather than in pixel numbers, is said to possess "World Coordinates". It is a very desirable characteristic. It allows you to refer to positions on the screen using numbers which are meaningful to the problem you are trying to solve (the real world) rather than numbers which are meaningful only to the inside circuitry of your computer. Even though AmigaBASIC does not have World Coordinates, we can create the same effect by defining our own "User-Defined Functions". Aren't computers great?!

Fractals

In 1980, Benoit Mandelbrot identified a set of numbers which had certain properties. This month's example is a program which solves for that set.

The Mandelbrot Set

The famous Mandelbrot Set is the set of all numbers which are coordinates to the black part of Figure 1. That's not a very scientific definition. In fact, it's not exactly complete. But it will serve as a starting point from which, in future articles, we will

gain a complete understanding of what this set really means. It looks like a map of a land mass surrounded by blue ocean and white surf, or maybe your imagination prefers white sandy beaches. Anyway, it's the black land mass that is important to us today.

Fractal properties

This Mandelbrot Set possesses a very intriguing property common to all fractals: the property of infinite detail. Certainly you must have noticed the numerous occurrences of little circular land masses jutting out around the edge, or coastline, of the Mandelbrot Set. Maybe you view them as little peninsulas. Suppose you had a very high-quality photograph of the Mandelbrot Set and a microscope. If you looked closely under the microscope at the edge of the Mandelbrot Set, you would see more occurrences of the little black circles, ones too small to see with the naked eye. Now, go get a more powerful microscope and look again. Again you see more little circles that you could not see before. Are you beginning to understand? The big surprise about this coastline is that, theoretically, you could keep looking more and more closely, each time with an ever more powerful microscope, and you would never reach the end. Each time you would see new details that were not visible before.

Another property of fractals which can be seen in this month's example is that of recurring similarity. As you magnify the set, the new detail that appears always looks similar to the older larger detail, but not exactly equal to it. Like many of the things you encounter in nature—leaves, snowflakes or faces in a crowd—they are similar and yet they each have their own distinct characteristics. The most impressive demonstration of this is in the occurrence of what has been called island molecules. In the white border that surrounds your view of the Mandelbrot Set, you may have noticed an occasional little black speck or dot. I like to think of these as rocks jutting out of the white surf along the coast of a country called Mandelbrotland. The surprise is that if you magnify these little dots, they show great similarity to the larger Mandelbrot Set. They look like little Mandelbrot Sets; see Figure 3.

In practice, no real photograph can show the infinite detail of a fractal. Real photographs are made up of picture elements called grain, and there is a limit to how much you can magnify them under a microscope and still see new detail. However, a computer can be used to create the effect of using a microscope. With your knowledge of Cartesian coordinates, you can modify the example program in this article to do that. You know that the Cartesian coordinates for the edges of the screen are given in the variables xmax, xmin, ymax, and ymin. That's all you have to modify to create the microscope effect. Choose coordinates which cover a more narrow range and you will see the Mandelbrot Set expanded on your screen. Try the following to produce the picture of Figure 2:

xmin = -1.5, xmax = -0.7, ymin = 0, ymax = .6

This zooms you in, as if you were looking through a microscope. Notice that you can now see new little black circles around the coastline that were not quite visible before. Also little specks called island molecules are appearing. Figure 3 shows the output of the AmigaBASIC version of the program zooming in on one such molecule. The similarity to last month's island molecule is striking, yet close inspection reveals that it is indeed a different island molecule. The coordinates of the screen edges are:

xmin = -1.02
xmax = -1.0
ymin = .305
ymax = .32

To obtain the colors of Figure 3, replace the "Select.Color" subroutine with:

```
Select.Color
    IF k<40 THEN
        COLOR 0
    ELSEIF k>=40 AND k<60 THEN
        COLOR 1
    ELSEIF >=60 AND k<Crunch THEN
        COLOR 3
    ELSE
        COLOR 2
    ENDIF
```

In future articles we will discuss the selection of colors and you will learn the exact meaning of these lines, thus allowing you to design your own fractals. For now, enter and enjoy.

You can continue to blow up the Mandelbrot Set simply by choosing coordinates which cover a more and more narrow



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In future articles we will discuss the selection of colors and you will learn the exact meaning of these lines, thus allowing you to design your own fractals. For now, enter and enjoy.

You can continue to blow up the Mandelbrot Set simply by choosing coordinates which cover a more and more narrow range. Be careful though. This fractal effect is evident only along the coastline. If you were to pick coordinates like:

xmax = 0
xmin = -0.2
ymax = 0.1
ymin = -0.1

you would see nothing but a black screen. You have zoomed in on the land part of the set. Also, be careful not to drown yourself in the ocean!

Why don't you do a little exploring on your own. Figure 1 shows a picture of the Mandelbrot Set with some coordinates labeled around the edges of the drawing. Use these as a guide and choose coordinates which correspond to sections of the set that you want to see expanded. The effect will be to zoom in closer and closer. Why don't you see if there is a practical limit beyond which your Amiga cannot zoom in any closer?

Next article

In Part III, I will temporarily put aside my presentation of fractals and talk about two Amiga-specific issues that we will need in our future work: how to call up a screen with 16 colors, instead of the four we have been using so far, and how to save your fractals to disk, thus allowing you to view a fractal which has been previously generated.

Listing One
AmigaBASIC version

```
  Declare scaling functions
DEF  FNx(x)=INT(((x-xmin)+dx/2)/dx)
DEF  FNy(y)=186-INT(((y-ymin)+dy/2)/dy)

  Declare screen coordinates
xmin = -2.4
xmax = .8
ymin = -1.2
ymax =  1.2
dx = (xmax-xmin)/617
dy = (ymax-ymin)/186

LINE (0,0)-(617,186),2,bf

Crunch = 500
M = 4

FOR j = ymin TO ymax+dy/2 STEP dy
  FOR i = xmin TO xmax+dx/2 STEP dx

    GOSUB Calculate
    GOSUB Select.Color
    PSET (FNx(i),FNy(j))

  NEXT i
NEXT j

END

Calculate:
    x = 0
    y = 0
    k = 0
    r = 0

    WHILE r<=M AND k<Crunch
       xk = x*x - y*y + i
        y = 2*x*y + j
        x = xk
        k = k+1
        r = x*x + y*y
    WEND
RETURN

Select.Color:
    IF k<=10 THEN
      COLOR 0
    ELSEIF k>10 AND k<Crunch THEN
      COLOR 1
    ELSE
      COLOR 2
    END IF
RETURN
```

Listing Two
TRUE BASIC version

```
let xmin = -2.4
let xmax = .8
let ymin = -1.2
let ymax =  1.2
let dx = (xmax-xmin)/639
let dy = (ymax-ymin)/199

set window xmin, xmax, ymin, ymax
set color 2
box area xmin, xmax, ymin, ymax

let Crunch = 500
let M = 4

for j=ymin to ymax+dy/2 step dy
    for i=xmin to xmax+dx/2 step dx

        call Calculate
        call Select_Color
        plot points: i,j

    next i
next j

sub Calculate
        let x=0
        let y=0
        let k=0
        let xk=0
        let r=0

        do while (r<M and k<Crunch)
           let xk = x*x - y*y +i
           let y = 2*x*y + j
           let x = xk
           let k = k+1
           let r = x*x + y*y
        loop
end sub

sub Select_Color
        select case k
              case 0 to 10
                   set color 0
              case 11 to 499
                   set color 1
              case 500
                   set color 2
        end select
end sub
```

Listing Three
For a picture of Figure Three in TRUE BASIC, use the following range:

```
xmin = -1.02
xmax = -1
ymin = .305
ymax = .32
```

and replace Select_Color subroutine with:

```
sub Select_Color
        select case k
                 case 0 to 39
                    set color 0
              case 40 to 59
                    set color 1
             case 60 to 499
                    set color 3
              case 500
                    set color 2
        end select
end sub
```

•AC•

Roomers

by the Bandito

[The statements and projections presented in "Roomers" are rumors in the purest sense. The bits of information are gathered by a third party source from whispers inside the industry. At press time, they remain unconfirmed and are printed for entertainment value only. Accordingly, the staff and associates of Amazing Computing™ cannot be held responsible for the reports made in this column.]

The Bandito's spies are suffering from information overload. The conventional wisdom is that this is the slow time of the year, but you wouldn't know it from the amount of news being generated.

The Big Story

Commodore has had a Night of the Long Knives in the upper management of the U.S. division. The most notable casualty is Max Toy, who has "resigned to pursue other interests." Max, as you may remember, was the President of Commodore U.S., and as such had responsibility for all U.S. sales, marketing, and operations. "Resigned to pursue other interests" is corporate doublespeak for "Don't let the door hit you in the butt on your way out." Gee, does Commodore really think anybody believes it's a coincidence that they announce Toy's "resignation" in the same press release that they announce the appointment of a new president? ("Well, gosh, he resigned and just as he did this new guy walked in with a great resume so we hired him.") Sure!

Well, the story that has reached the Bandito's ears is that Commodore (in the form of Irving Gould, the man in charge) "broke his Toy", so to speak, because Toy just wasn't producing the sales Irving expected for the U.S. Toy was tossed in favor of Harold D. Copperman, a twenty year IBM veteran who just left a two-year stint with Apple. Mr. Copperman is now President and Chief Operating Officer of Commodore's U.S. Operations, a division of Commodore Business Machines, Inc.

Harry (the Bandito likes to speak on a personal level) was most recently Vice President of Eastern Operations for Apple Computer, Inc. His responsibilities included overseeing sales, marketing, support and distribution for Apple's Eastern region. He also managed Apple's Federal Systems Group. (Ironically, one of Copperman's last acts with Apple was to introduce John Sculley at the New York Mac Business Expo: "Heeere's Johnny! And, by the way, I'm resigning.") Harry's most recent IBM position was National Director of Marketing for IBM's Academic Information Systems Business Unit.

Irving Gould, Chairman, Commodore International Limited, said, "Our overseas operations have experienced strong growth in sales and profitability, and the hiring of an individual with Harry Copperman's experience and track record is a key element in our plan for building a strong US operation."

The Bandito reads between the lines to decipher that as "U.S. sales haven't been good, so we're going to give a new man a chance to make it better." Dear Harry: The Bandito wishes you the best of luck, and hopes that you sell all the Amigas you can produce. The information you'll find in this column may help you to do that, or at least to avoid some mistakes. By the way, don't wait too long. Irving only gave the last guy two years, so you'd better move fast.

Other Commodore Logoffs

The story is bigger than just the firing/hiring of a president. It seems that Max wasn't the only top level official to leave Commodore recently. The Bandito hears that veteran marketdroid Rich McIntyre and new hotshot Dave Klein have also disappeared, though with little fanfare. *[A representative from Commodore Marketing verified that both men hadn indeed left—ed.]*

You wouldn't believe the rumors swirling around Westchester regarding these departures, so the Bandito won't trouble you with them. It's all being kept quiet, doubtless, because Commodore hopes to avoid any lawsuits this time. (The Bandito still doesn't know what happened to the lawsuit filed the last time they lost a top executive — remember that one?).

Apparently, from what the Bandito can piece together while hiding inside a Westchester water cooler, Max and his gang were getting tired of trying to push the Amiga, and had just about decided to concentrate on IBM compatibles. Irving wants more Amiga sales, so out with Max and his boys. This is probably a gross oversimplification, but the true story may never be known.

What will all these management changes do to the Amiga? Well, the Bandito's predictions of the past few months can get put on hold, for now. Until the Man of Copper decides which way he's going to take Commodore U.S., it's anybody's bet as to whether we'll see A500's in the mass market chains or an Amiga-based videogame box.

The Bandito's ear will be pressed tight to the datastream, though. Remember, Harry doesn't control Commodore R&D — that's under the direction of Dr. Henri Rubin, who reports directly to Mehdi Ali, new Commodore International head (who reports to Irving, and Irving reports to himself, if anybody.) So the Amiga 3000 or other hardware projects are not under Harry's control. But he does get input into how new machines are introduced in America.

Well, how's the company doing these days? Pretty well, according to their latest financials. Commodore International Limited reported income of $12.4 million on sales of $210.2 million for the third fiscal quarter (ended March 31, 1989). This represents a 38% increase in earnings and a 5% increase in sales, compared to income of $9.0 million and sales of $200.3 million in the year-ago quarter.

For the nine months endeding March 31, 1989, Commodore reported income of $60.2 million on sales of $759.4 million. This compares to income of $36.0 million on sales of $655.9 million last year. So they're doing about a billion dollars a year, which is not

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chicken feed. Commodore's figures look good, but appear small in the big picture. Apple's cranking along at about $4 billion a year, and IBM is cruising along in hyper-drive at around $60 billion. Commodore's total sales are less than IBM's R&D budget.

Even with all of the management changes, Commodore's stock is still hovering just beneath the $20 mark these days, which is higher than it's been in about 5 years. Apparently the investors think that these are good moves. Whether the rest of the world thinks so won't be known for some months. It's all up to Harry, at this point. Your move, new guy!

The Other Big Story

WordPerfect has abandoned future support for the Amiga market. They have cancelled PlanPerfect for the Amiga and put a on hold any plans for a major revision to WordPerfect. However, they will continue to fix bugs in the current version of WordPerfect.

Why did they give up on the Amiga? In a nutshell, sales slowed down too much to justify the cost of developing a new Amiga version, and the market looked too weak to introduce PlanPerfect. They needed to do too much work to be competitive (adding WYSIWYG display, pasting in graphics, etc.). WordPerfect had hoped the German market would generate enough money to pay for the projects, but unfortunately it's not selling in Germany. Although Amiga sales are strong; the 500 is claiming most of the sales, and WordPerfect doesn't run well at all on the 500.

This is bad news for the Amiga. Unless Commodore can get its act together and sell more Amigas, the big software developers are going to stay away. Having an installed base of 1 million machines is all well and good, but most people buy their big software package when they buy the hardware, so the installed base doesn't mean as much to the big software developers.

And unless Commodore can convince the price of software to go up, there will be no high-powered software from big companies. Remember, the Macintosh started off with software priced under $100, supposedly. But it didn't take off until the computer found a niche and then developers could charge $400 or $500 for software. Then the big software companies started to move in and produce their high-end software. This opened the door for the computer to sell to more businesses.

Is it true that Commodore is selling more Amigas in Finland than the in U.S.? Maybe not, but the numbers are much closer than Commodore would like. The U.S. market for Amigas has been soft so far this year, with disastrous effects on the weaker Amiga developers. With a new team in, perhaps Commodore can provide a steady growth in sales. The elements are all there: a good installed hardware base, a solid software library of important applications, capabilities that aren't found on other systems except at outrageous prices. The challenge: build an image that will get people to buy Amigas for business, and provide a solid dealer network to support the needs of those businesses.

The only thing needed is time to get it all working, and enough money to make it happen. The Bandito has said it before, but it bears saying again: the niche for the Amiga is desktop video. Sure, there's a solid market for the A500 as a home entertainment/productivity machine, but for business, video is where the Amiga really shines. Graphics, animation, presentations, and manipulating real video are the strengths of the Amiga.

But Commodore has to strike hard and fast before Apple takes the desktop video market away. Apple was all over the National Association of Broadcasters show (NAB) like bugs on beta software. Of course, all the useful stuff they showed cost at least $50,000, so it's not going to be on every street corner. But they're making a lot of noise and drawing attention. Visual editing systems were shown on a Mac in at least three spots.The Bandito has learned that Apple is trying to schmooze some leading Amiga developers into developing their products for the Macintosh instead of the Amiga. Clearly, Apple recognizes Amiga's leadership position in the desktop video market and is trying hard to grab it away before Commodore even realizes that they're out in front. Well, Commodore? Where's your support for the concept? If you don't concentrate your effort, Apple may take that market

away from you.

The bright spot for the Amiga at NAB was NewTek showing off the Video Toaster, which caused quite a stir among the video professionals. When it finally comes out, the Toaster should cement a place for the Amiga in the professional video market. At the NewTek booth, the Bandito's spies sneaked a peek under the hood of one of the A2000's and report that the Toaster card is not a wire-wrap, but an actual production model. This can only mean they're getting closer to shipping the darn thing. Satellite photos report massive installations being constructed in the vicinity of Topeka, so they must be building a production facility.

What else is going on with the Amiga? Well, the Bandito has gleaned a number of other interesting bits and bytes. For starters, industry insiders are saying that there's less piracy on Amigas than other formats. The worst offenders appearing to be Atari ST owners (the Bandito virtuously withholds speculation on why this might be true). The theory is that Amiga owners saw how piracy had ruined the Atari market, and decided to keep buying Amiga software to keep the Amiga market solid. If so, that's a good sign. We've got to try harder, if we want to move up from third!

What's looming on the horizon of Amiga technology? Someday soon, the 9 megabyte barrier will become important. It may not seem like much of a barrier to mere mortals like you and me, but some power users are already wishing that they could cram in more memory.

Why? Animation, mostly. Creating three-dimensional objects and then animating them chews up RAM like crazy. Sure, scoff now, but when RAM prices fall to a quarter of their current level; 9 megabytes won't be so expensive. Then we'll be looking for ways to get around that limitation. Sounds like a job for Kickstart 2.0.

While we're on that subject, how soon is 1.4 coming? It would make a nice Christmas present, the Bandito believes, but Santa Claus probably won't deliver it much before then. The most important thing about 1.4 (in case you've been living in a bus locker) is support for 640 x 400 non-interlaced 4 color mode, which of course requires the Enhanced Chip Set. We'll need Kickstart 2.0 for the Really Enhanced Chip Set, which the Bandito hopes will arrive in 1990. What should the Really Enhanced Chip Set have? Support for 16 bit color, larger bit-maps and a faster blitter, at the very least.

Despite all the wonders that bigger-better-faster chips hold, the Bandito just wishes the Amiga had a standard system font that didn't look like an old typewriter. Something with a little bit more style than a C64. (Though at least you don't have to type Load "*",8,1.) Hey, while you're at it, let's see programs where the interface and all the requesters DON'T become unreadable when you go into interlace mode.

Commodore's R&D department is advancing the frontiers of technology yet again — they're redesigning the C64 and C128. (Once more, with feeling.) Why? you ask plaintively. Well, they've actually got a good reason, this time. The objective is to sell more C64s and C128s into countries that don't have many computers.

This is really quite clever. The biggest barrier toward computerizing in many Third World countries is the high price of computer equipment, assuming you can get the computers past the technology export laws. Well, the C64 can slide right by technology export restraints, and the price is even lower than IBM clones. Plus there's a huge body of software of which some stacks up well for professional applications. Commodore may even speed up the clock rate of the 6502 inside the C128, which would make it a powerful business machine (at least as good as an 8088, or maybe better).

In other reports, the last word before the new regime entered was that Commodore is considering lowering the retail price of the Amiga 500 by $200 sometime this summer. Maybe that refers to the system price—the Bandito's informant was trying to speak with his tongue cut out, so the message was somewhat garbled. Of course, this may change due to new management, but the idea makes sense.

It's important for Commodore to gain a market share, especially against the PC clones, which are close in price point. A lower price tag makes the A500 more compelling as a possible upgrade to a Nintendo. (Hey, if you're a heavy-duty game player and you want the best, the Amiga's where it's at. Besides, you can justify it easier "Aw, Mom, this is a computer that I can do my homework on!") A price cut that brings the street price of an Amiga system under $1000 would really move some units, even if Commodore doesn't put the A500 into mass-market channels.

The latest Tengen lawsuit against Nintendo (Number 13 in a series; collect 'em all) charges infringement of copyright over *Tetris*, the simple pattern game from the Soviet Union that's become so popular. Nintendo announced plans to market its own version, while Tengen claims they had the rights. A minor squabble compared to the big-ticket litigation already in process.

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In other legal news, Quarterdeck Software got a patent on their windowing software (DesqView) for IBM type machines. This could have an impact on all other windowing interfaces, including the Amiga's. It could also affect the ongoing suit between Apple and Microsoft over the same issue. By the way, the Bandito hears that if Apple wins in a big way, the Amiga might be their next target. Let's all root for Microsoft to take a bite out of the Apple.

Speaking of the competition, the Bandito is highly amused to see that AppleWorks GS is getting thoroughly hosed by reviewers. What's AppleWorks GS and why should you care? Well, it's an "integrated" program that combines a word processor, spreadsheet, and flat file database (with a few other odds and ends). This was supposed to be the flagship application that would get everyone to buy a IIGS, just the way AppleWorks sold a zillion Apple II's.

AppleWorks GS may have just the opposite effect, convincing the world that the IIGS is good for little more than a decorative planter box (manure provided free in their advertising). The program's a nice idea, but the machine is so painfully slow that it just can't work (aside from the fact that it's crawling with bugs, and it's faster to chisel out a report into stone tablets than have AppleWorks GS print a file). The computer has no clothes, and this program points it out. Pencil and paper are faster.

Oh, but Apple is still putting on a brave public face. Word is that the Apple IIGS may get a boost with a version of HyperCard in July. The new GS system software release this summer is supposed to speed up the operating system substantially, bringing it from agonizingly slow to painfully slow. But the Amiga will still run rings around it with one co-processor tied behind its back, and the Bandito has heard of at least three HyperCard-like programs (only better) in development for the Amiga. The poor old IIGS hardware can't handle HyperCard with any speed, anyway.

Well, it's too easy to kick around the IIGS — the poor thing is brain-dead and living on tenuous life-support from Apple (no solid R&D food, just an IV drip of public relations and press releases). Apple is putting its energies into the Macintosh, and giving up on the II line.

Some external evidence of this: major Apple II developers are now announcing publicly that they are no longer developing Apple II products (Orange Micro, for instance). And in an equally significant move, Apple just lowered prices on low-end Macs for school systems, pushing hard to get more Macs in K thru 12. Once they've got the Macintosh firmly into that market. Then they can pull the plug on the II line.

Even stranger rumors have it that Apple may put in IIGS emulation software into the upcoming low-end Mac in order to get educational sales. The Bandito doesn't think so — how would it support color? Besides, it would be terrifically slow. Maybe Apple II emulation, just to satisfy a check-mark on a buyer's list. Of course nobody would ever use it, but it's there when your boss asks about it.

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What Will They Think Of Next Dept

Apple has announced a new System update which will add inter-process com.nunications to the Macintosh around December. Kind of like ARexx on the Amiga, only less flexible. They hope to have true multi-tasking by sometime in 1991. Let's see, that's only six years after the Amiga.

Oh, by the way, their new System software requires 2 megabytes of memory. With multitasking, you're probably looking at 3 megabytes. Still, it is better than OS/2, which requires at least 4 megabytes, but it is multitasking. Oh, and it looks like Apple is finally going to add a graphics coprocessor — the AMD 29000 will speed up graphics operations considerably. It probably won't be available for older Macs, but only on new 25 and 33 MHz 68030 Macs. Also they'll add DMA to speed up SCSI. What great ideas! Wonder where they got them?

•AC•

The AMICUS & Fred Fish

Public Domain Software Library

This software is collected from user groups and electronic bulletin boards around the nation. Each Amicus disk is nearly full, and is fully accessible from the Workbench. If source code is provided for any program, then the executable version is also present. This means that you don't need the C compiler to run these programs. An exception is granted for those programs only of use to people who own a C compiler.

The Fred Fish disk are collected by Mr. Fred Fish, a good and active friend of the Amiga.

Note: Each description line below may include something like 'S-O-E-D', which stands for 'source, object file, executable and documentation'. Any combination of these letters indicates what forms of the program are present. Basic programs are presented entirely in source code format.

AMICUS Disk 1
ABasic programs: Graphics
3DSolids — 3d solids modeling prog. w/sample data files
Blocks — draws blocks
Cubes — draws cubes
Durer — draws pictures in the style of Durer
FScape — draws fractal landscapes
Hidden — 3D drawing program, w/ hidden line removal
JPad — simple paint program
Optical — draw several optical illusions
PaintBox — simple paint program
Shuttle — draws the Shuttle in 3d wireframe
SpaceArt — graphics demo
Speaker — speech utility
Sphere — draws spheres
Spiral — draws color spirals
ThreeDee — 3d function plots
Topography — artificial topography
Wheels — draws circle graphics
Xenos — draws fractal planet landscapes
ABasic programs: Tools
AddressBook — simple database program for addresses
CardFile — simple card file database program
Demo — multiwindow demo
KeyCodes — shows keycodes for a key you press
Menu — run many ABasic programs from a menu
MoreColors — way to get more colors on the screen at once, using aliasing
shapes — simple color shape designer SpeakIt speech and narrator demo
ABasic programs: Games
BrickOut — classic computer brick wall game
Othello — also known as 'go'
Saucer — simple shoot-em-up game
Spelling — simple talking spelling game
ToyBox — selectable graphics demo
ABasic programs: Sounds
Entertainer — plays that tune
HAL9000 — pretends it's a real computer
Police — simple police siren sound
SugarPlum — plays "The Dance of the Sugarplum Fairies"
C programs:
ATerm — simple terminal program, S-E
cc — aid to compiling with Lattice C
decvnt — opposite of CONVERT for cross developers
Dotty — source code to the 'dotty window demo
echox — unix-style filename expansion, partial S,O-D
fasterfp — explains use of fast-floating point math
FixDate — fixes future dates on all files on a disk, S-E
freedraw — simple Workbench drawing prog., S-E
GfxMem — graphic memory usage indicator, S-E
Grep — searches for a given string in a file with docs.
ham shows off the hold-and-modify method of color generation
IBM2Amiga — fast parallel cable transfers between an IBM and an Amiga
Mandel — Mandelbrot set program, S-E
moire — patterned graphic demo, S-E
objfix — makes Lattice C object file symbols visible to Wack, S-E
quick — quick sort strings routine
raw — example sample window I/O
setiace — turns on interlace mode, S-E
sparks — qix-type graphic demo, S-E
Other executable programs:
SpeechToy — speech demonstration
WhichFont — displays all available fonts
Texts:
68020 — describes 68020 speedup board from CSA
Aliases — explains uses of the ASSIGN command
Bugs — known bug list in Lattice C 3.02
CLICard — reference card for AmigaDOS CLI
CLICommands — guide to using the CLI
Commands — shorter guide to AmigaDOS CLI commands
EdCommands — guide to the ED editor
Filenames — AmigaDOS filename wildcard conventions
HalfBright — explains rare graphics chips that can do more colors
ModemPins — description of the serial port pinout
RAMdisks — tips on setting up your RAM: disk
ROMWack — tips on using ROMWack
Sounds — explanation of Instrument demo sound file format
Speed — refutation of Amiga's CPU and custom chip speed
WackCmds — tips on using Wack

AMICUS Disk 2
C programs:
alib — AmigaDOS object library manager , S-E
ar — text file archive program, S-E
fixobj — auto-chops executable files
shell — simple CLI shell, S-E
sq, usq — file compression programs, S-E
YachtC — a familiar game, S-E
Make — a simple 'make' programming utility, S-E
Emacs — an early version of the Amiga text editor, S-E-D
Assembler programs:
bsearch.asm — binary search code
qsort.asm — Unix compatible qsort() function, source and C test program
setjmp.asm — setjmp() code for Lattice 3.02
SVprintf — Unix system V compatible printf()
trees.o — Unix compatible tree() function, O-D
(This disk formerly had IFF specification files and examples. Since this spec is constantly updated, the IFF spec files have been moved to their own disk in the AMICUS collection.)
John Draper Amiga Tutorials:
Animate — describes animation algorithms
Gadgets — tutorial on gadgets
Menus — learn about Intuition menus

AMICUS Disk 3
C programs:
Xref — a C cross-reference gen., S-E
6bitcolor — extra-half-bright chip gfx demo, S-E
Chop — truncate (chop) files down to size, S-E
Cleanup — removes strange characters from text files
CR2LF — converts carriage returns to line feeds in Amiga files, S-E
Error — adds compile errors to a C file, S
Hello — window ex. from the RKM, S
Kermit — generic Kermit implementation, flakey, no terminal mode, S-E
Scales — sound demo plays scales, S-E
SkewB — Rubik cube demo in hi-res colors, S-E
AmigaBasicProgs(dir)
Automata — cellular automata simulation
CrazyEights — card game
Graph — function graphing programs
WitchingHour — a game
ABasiC programs:
Casino — games of poker, blackjack, dice, and craps
Gomoku — also known as 'othello'
Sabotage — sort of an adventure game
Executable programs:
Disassem — a 68000 disassembler, E-D
DpSlide — shows a given set of IFF pictures, E-D
Arrange — a text formatting program, E-D
Assembler programs:
Argoterm — terminal program with speech and Xmodem, S-E

AMICUS Disk 4 Files from the original Amiga Technical BBS
Note that some of these files are old, and refer to older versions of the operating system. These files came from the Sun system that served as Amiga technical support HQ for most of 1985. These files do not carry a warranty, and are for educational purposes only. Of course, that's not to say they don't work.

Complete and nearly up-to-date C source to 'image.ed', an early version of the Icon Editor. This is a little flaky, but compiles and runs.

An Intuition demo, in full C source, including files: demomenu.c, demomenu2.c, demoreq.c, getascii.c, idemo.c, idemo.guide, idemo.make, idemoall.h, nodos.c, and txwrite.c
addmem.c — add external memory to the system
bobtest.c — example of BOB use
consoleIO.c — console IO example
creaport.c — create and delete ports
creastdi.c — create standard I/O requests
creatask.c — creating task examples
diskio.c — example of track read and write
dotty.c — source to the 'dotty window' demo
dualplay.c — dual playfield example
flood.c — flood fill example
freemap.c — old version of 'freemap'
geltools.c — tools for VSprites and BOBs
gfxmem.c — graphic memory usage indicator
hello.c — window example from RKM
inputdev.c — adding an input handler to the input stream
joystik.c — reading the joystick
keybd.c — direct keyboard reading
layertes.c — layers examples
mousport.c — test mouse port
ownlib.c, ownlib.asm — example of making your own library with Lattice
paratest.c — tests parallel port commands
seritest.c — tests serial port commands
serisamp.c — example of serial port use
prinintr.c — sample printer interface code
prtbase.h — printer device definitions
regintes.c — region test program
setiace.c — source to interlace on/off program
setparallel.c — set the attributes of the parallel port
SetSerial.c — set the attributes (parity, data bits) of the serial port
singplay.c — single playfield example
speechtoy.c — source to narrator and phonetics demo
timedely.c — simple timer demo
timer.c — exec support timer functions
timrstuf.c — more exec support timer functions
WhichFont.c — loads and displays all available system fonts
process.i and prtbase.i assmebler include files:
autorqstr.txt — warnings of deadlocks with autorequesters
consoleIO.txt — copy of the RKM console I/O chapter
diskfont.txt — warning of disk font loading bug
fullfunc.txt — list of #defines, macros, functions
inputdev.txt — preliminary copy of the input device chapter
License information on Workbench distribution license
printer pre-release copy of the chapter on printer drivers, from RKM 1.1
v11fd.txt 'diff' of .fd file changes from version 1.0 to 1.1 v28v1.diff 'diff' of include file changes from version 28 to 1.0

AMICUS Disk 5 Files from the Amiga Link / Amiga Information Network
Note that some of these files are old, and refer to older versions of the operating system. These files are from Amiga Link. For a time, Commodore supported Amiga Link, aka AIN, for online developer technical support. It was only up and running for several weeks. These files do not carry a warranty, and are for educational purposes only. Of course, that's not to say they don't work.
A demo of Intuition menus called 'menudemo', in C source
whereis.c — find a file searching all subdirectories
bobtest.c — BOB programming example
sweep.c — sound synthesis example
Assembler files:
mydev.asm — sample device driver
mylib.asm — sample library example
mylib.i
mydev.i
asmsupp.i
macros.i — assembler include files
Texts:
amigatricks — tips on CLI commands
extdisk — external disk specification
gameport — game port spec
parallel — parallel port spec
serial — serial port spec
v1.1update — list of new features in version 1.1
v1.1h.txt — 'diff' of include file changes from version 1.0 to 1.1
Files for building your own printer drivers, including dospecial.c, epsondata.c, init.asm, printer.c, printer.link, printertag.asm, render.c, and wait.asm. This disk does contain a number of files describing the IFF specification. These are not the latest and greatest files, but remain here for historical purposes. They include text files and C source examples. The latest IFF spec is elsewhere in this library.

AMICUS Disk 6 IFF Pictures
This disk includes the DPSlide program, which can view a given series of IFF pictures, and the 'showpic' program, which can view each file at the click of an icon. The pictures include a screen from ArticFox, a Degas dancer, the guys at Electronic Arts, a gorilla, horses, King Tut, a lighthouse, a screen from Marble Madness, the Bugs Bunny Martian, a still from an old movie, the Dire Straits moving company, a screen from Pinball Contruction Set, a TV newcaster, the PaintCan, a world map, a Porsche, a shuttle mission patch, a tyrannosaurus rex, a planet view, a VISA card, and a ten-speed.

AMICUS Disk 7 DigiView HAM demo picture disk
This disk has pictures from the DigiView hold-and-modify video digitizer. It includes the ladies with pencils and lollypops, the young girl, the bulldozer, the horse and buggy, the Byte cover, the dictionary page, the robot and Robert. This includes a program to view each picture separately, and all together as separate, slidable screens. The 'seeilbm' program, to turn any screen into an IFF picture.

AMICUS Disk 8
C programs:
Browse — view text files on a disk, using menus S-E-D
Crunch — removes comments and white space from C files, S-E
IconExec — EXECUTE a series of commands from Workbench S-E
PDScreen Dump — dumps Rastport of highest screen to printer
SetAlternate — sets a second image for an icon, when clicked once S-E
SetWindow — makes windows for a CLI program to run under Workbench S-E
SmallClock — a small digital clockin a window menu bar
Scrimper — the screen printer in the fourth AC S-E
Amiga Basic Programs:
(Note: Many of these programs are present on AMICUS Disk 1. Several of these were converted to Amiga Basic, & included here.)
AddressBook — a simple address book database
Ball — draws a ball
Cload — program to convert Compuserve hex files to binary, S-D
Clue — the game, Intuition driven
ColorArt — art drawing program
DeluxeDraw — the drawing program in the 3rd AC, S-D
Eliza — conversational computer psychologist
Othello — the game, as known as 'go'
RatMaze — 3D ratmaze game
ROR — boggling graphics demo
Shuttle — draws 3D pictures of the space shuttle
Spelling — simple spelling program
YoYo — wierd zero-gravity yo-yo demo, tracks yo-yo to the mouse
Executable programs:
3Dcube — Modula-2 demo of a rotating cube
AltIcon — sets a second icon image, displayed when the icon is clicked
AmigaSpell — a slow but simple spell checker, E-D
arc — the ARC file compression prog must for telecom, E-D
Bertrand — graphics demo
disksalvage — prog. to rescue trashed disks, E-D
KwikCopy — a quick but nasty disk copy program: ignores errors, E-D
LibDir — lists hunks in an object file E-D
SaveILBM — saves any screen as IFF pic.E-D ?? ScreenDump
shareware screen dump prog, E only
StarTerm — version 2.0, term program, XmodemE-D
Texts:
LatticeMain — tips on fixing _main.c in Lattice
GDiskDrive — make your own 5 1/4 drive
GuruMed — explains the Guru numbers
Lat3.03bugs — bug list of Lattice C version 3.03
MForgeRev — user's view of the MicroForge HD
PrintSpooler — EXECUTE-based print spool prog.
.BMAP files:
These are the necessary links between Amiga Basic and the system libraries. To take advantage of the Amiga's capabilities in Basic, you need these files. BMAPs are included for 'clist', 'console', 'diskfont', 'exec', 'icon', 'intuition', 'layers', 'mathffp', mathieeedoubas', 'mathieeesingbas', 'mathtrans', 'potgo', 'timer' and 'translator'.

AMICUS Disk 9
Amiga Basic Programs:
FlightSim — simple flight simulator program
HuePalette — explains Hue, Saturation, & Intensity
Requester — ex. of requesters from Amiga Basic
ScrollDemo — demonstrates scrolling capabilities
Synthesizer — sound program
WorldMap — draws a map of the world
Executable programs:
Boing! — latest Boing! demo,with selectable speed,E
Brush2C — converts an IFF brush to C data instructions, initialization code, E
Brush2Icon — converts IFF brush to an icon, E
Dazzle — graphics demo, tracks to mouse, E
DeciGEL — assembler program for stopping 68010 errors, S-E-D
Klock — menu-bar clock and date display, E
life — the game of life, E
TimeSet — Intuition-based way to set the time & date
EMEmacs — another Emacs, more oriented to word processing, S-E-D
MyCLI — a CLI shell, works without the Workbench, S-E-D
Texts:
FnctnKeys — read function keys from Amiga Basic
HackerSIn — explains how to win the game 'hacker'
Ist68010 — guide to installing a 68010 in your Amiga
Boing! — latest Boing! demo,with selectablespeed, E
Brush2C — converts an IFF brush to C data instructions, initialization code, E
Brush2Icon — converts IFF brush to an icon, E
Dazzle — graphics demo, tracks to mouse, E
DeciGEL — assembler program for stopping 68010 errors, S-E-D
Klock — menu-bar clock and date display, E
life — the game of life, E
TimeSet — Intuition-based way to set the time & date
EMEmacs — another Emacs, more oriented to word processing, S-E-D
MyCLI — a CLI shell, works without the Workbench, S-E-D
Texts:
FnctnKeys — explains how to read function keys from Amiga Basic
HackerSIn — explains how to win the game 'hacker'
Ist68010 — guide to installing a 68010 in your Amiga
PrinterTip — sending escape sequences to your printer
StartupTip — tips on setting up your startup-sequence file
XfrmrReview — list of Transformer programs that work
Printer Drivers:
Printer drivers for the Canon PJ-1080A, the C Itoh Prowriter, an improved Epson driver that eliminates streaking, the Epson LQ-800, the Gemini Star-10, the NEC 8025A, the Okidata ML-92, the Panasonic KX-P1Oxx family, and the Smith-Corona D300, with a document describing the installation process.

AMICUS Disk 10 Instrument sound demos
This is an icon-driven demo, circulated to many dealers. It includes the sounds of an acoustic guitar, an alarm, a banjo, a bass guitar, a boink, a calliope, a car horn, claves, water drip, electric guitar, a flute, a harp arpegio, a kickdrum, a marimba, a organ minor chord, people talking, pigs, a pipe organ, a Rhodes piano, a saxophone, a sitar, a snare drum, a steel drum, bells, a vibrophone, a violin, a wailing guitar, a horse whinny, and a whistle.

AMICUS Disk 11
C programs
dirutil — Intuition-based, CLI replacement manager S-E
cpri — shows and adjusts priority of CLI processes, S-E
ps — shows info on CLI processes, S-E
vidtex — displays Compuserve RLE pics, S-E
AmigaBasic programs
pointered — pointer and sprite editor program
optimize — optimization ex ample from AC article
calendar — large, animated calendar, diary and date book program
amortize — loan amortizations
brushtoBOB — converts small IFF brushes to AmigaBasic BOB OBJECTS
grids — draw and play waveforms
hilbert — draws Hilbert curves
madlib — mad lib story generator
mailtalk — talking mailing list program
meadows3D — 3D graphics program, from A C™ article
mousetrack — mouse tracking example in hires mode
slot — slot machine game
tictactoe — the game
switch — pachinko-like game
weird — makes strange sounds
Executable programs
cp — unix-like copy command, E
cls — screen clear, S-E
diff — unix-like stream editor uses 'diff' output to fix files
pm — chart recorder performances indicator
Assembler programs
cls — screen clear and CLI arguments example
Modula-2
trails — moving-worm graphics demo
caseconvert — converts Modula-2 keywords to uppercase
Forth
Breshehan circle algorithm example
Analyze — 12 templates for the spreadsheet Analyze
There are four programs here that read Commodore 64 picture files. They can translate Koala Pad, Doodle, Print Shop and News Room graphics to IFF format. Getting the files from your C-64 to your Amiga is the hard part.

AMICUS Disk 12
Executable programs
blink — 'alink' compatible linker, but faster, E-D
clean — spins the disk for disk cleaners, E-D
epsonset — sends Epson settings to PAR from menu E-D
showbig — view hi-res pics in low-res superbitmap, E-D
speaktime — tell the time, E-D
undelete — undeletes a file, E-D
cnvapldhm — converts Apple][low, medium and high res pictures to IFF, E-D
menued — menu editor produces C code for menus, E-D
quick — quick disk-to-disk nibble copier, E-D
quickEA — copies Electronic Arts disks, removes protection, E-D
txed 1.3 — demo of text editor from Microsmiths,E-D
C programs
spin3 — rotating blocks graphics demo, S-E-D
popcli — start a new CLI at the press of a button, like Sidekick, S-E-D
vsprite — VSprite example code from Commodore, S-E-D
AmigaBBS — Amiga Basic bulletin board prog., S-D
Assembler programs
star10 — makes star fields like Star Trek intro,S-E-D
Pictures
Mount Mandelbrot — 3D view of Mandelbrot set
Star Destroyer — hi-res Star Wars starship
Robot — robot arm grabbing a cylinder
Texts
vendors — Amiga vendors, names, addresses
cardco — fixes to early Cardco memory boards
cinclude — cross-reference to C include files
mindwalker — clues to playing the game well
slideshow — make your own slideshows from the Kaleidoscope disk

AMICUS Disk 13
Amiga Basic programs
Routines from Carolyn Scheppner of CBM Tech Support, to read and display IFF pictures from Amiga Basic. With documentation. Also included is a program to do screen prints in Amiga Basic, and the newest BMAP files, with a corrected ConvertFD program. With example pictures, and the SaveILBM screen capture program.

Routines to load and play FutureSound and IFF sound files from Amiga Basic, by John Foust for Applied Visions. With documentation and C and assembler source for writing your own libraries, and interfacing C to assembler in libraries. With example sound.

Executable programs
gravity — Sci Amer Jan 86 gravitation graphic simulation, S-E-D
Texts
MIDI — make your own MIDI instrument interface, documentation & a hi-res schematic.

AMICUS Disk 14
Several programs from Amazing Computing issues:
Tools
Dan Kary's — C structure index program, S-E-D
Amiga Basic programs:
BMAP Reader — by Tim Jones
IFFBrush2BOB — by Mike Swinger
AutoRequester — example
DOSHelper — Windowed help system for CLI commands, S-E-D
PETrans — translates PET ASCII files to ASCII files, S-E-D
C Squared — Graphics program from Scientific American, Sept 86, S-E-D
crlf — adds or removes carriage returns from files, S-E-D
dpdecode — decrypts Deluxe Paint, remo
ves copy — protection, E-D
queryWB — asks Yes or No from the user returns exitt code, S-E
vc — VisiCalc type spreadsheet, no mouse control, E-D
view — views text files with window and
slider — gadget, E-D
Oing, Sproing, yaBoing, Zoing are sprite-based
Boing! style — demos, S-E-D
CLIClock, sClock, wClock are window border clocks, S-E-D
Texts
An article on long-persistance phospor monitors, tips on making brushes of odd shapes in Deluxe Paint, and recommendations on icon interfaces from Commodore-Amiga.

AMICUS Disk 15
The C programs include:
'pr' — a file printing utility, which can print files in the background, and with line numbers and control character filtering.
'fm' — displays a chart of the blocks allocated on a disk.
'Ask' — questions an 'execute' file, returns an error code to control the execution in that batch file
'Stat' — an enhanced version of AmigaDOS 'status' command.
'Dissolve' — random-dot dissolve demo displays IFF picture slowly, dot by dot, in a random fashion.
'PopCLI2' — invoke new CLI window at the press of a key.
The executable programs include:
'Form' — file formatting program through the printer driver to select print styles
'DiskCat' — catalogs disks, maintains, sorts,merges lists of disk files
'PSound' — SunRize Industries' sampled sound editor & recorder
'Iconmaker' — makes icons for most programs
'Fractals' — draws great fractal seascapes and mountain scapes.
'3D Breakout' — 3D glasses, create breakout in a new dimension
'AmigaMonitor' — displays lists of open files,
memory use, — tasks, devices and ports in use.
'Cosmoroids' — version of 'asteroids' for the Amiga.
'Sizzlers' — high resolution graphics demo writteN in Modula 2.
Texts:
'ansi.txt' — explains escape sequences the CON: device responds to.
'FKey' — includes template for making paper to sit in the tray at the top of the Amiga keyboard.
'Spawn' — programmer's document from Commodore
Amiga, describs ways to use the Amiga's multitasking capabilities in your own programs.
AmigaBasic programs:
'Grids' — draw sound waveforms, and hear them played.
'Light' — a version of the Tron light-cycle video game.
'MigaSol' — a game of solitaire.
'Stats' — program to calculate batting averages
'Money' — "try to grab all the bags of money that you can."
AMICUS 15 also includes two beautiful IFF pictures, of the enemy walkers from the ice planet in Star Wars, and a picture of a cheetah.

AMICUS Disk 16
'juggler' — demo by Eric Graham. a robot juggler bouncing three mirrored balls, with sound effects. Twenty-four frames of HAM animation are flipped quickly to produce this image. You control the speed of the juggling. The author's documentation hints that this program might someday be available as a product.
IFF pictures
parodies of the covers of Amiga World and Amazing Computing.
C programs:
'inputhandler' — example of making an input handler.
'FileZap3' — binary file editing program
'ShowPrint' — displays IFF picture, and prints it.
'Gen' — program indexes and retrieves C structures and variables declared in the Amiga include file system.
Executable Programs:
'FixHunk2' — repairs an executable program file for expanded memory
'ms2smus' — converts Music Studio files to IFF standard 'SMUS' format. I have heard this program might have a few bugs, especially in regards to very long songs, but it works in most cases.
'Missile' — Amiga version of the 'Missile Command' video game,

This disk also contains several files of scenarios for Amiga Flight Simulator II. By putting one of these seven files on a blank disk, and inserting it in the drive after performing a special command in this game, a number of interesting locations are preset into the Flight Simulator program. For example, one scenario places your plane on Alcatraz, while another puts you in Central Park

AMICUS Disk 17
Telcommunications disk whuch contains six terminal programs.
Comm V1.33 — term prog. with Xmodem, WXmodem,
ATerm V7.2 — term prog. includes Super Kermit
*VT-100*V2.6 — Dave Wecker's VT-100 emulator with Xmodem,Kermit, and scripting
Amiga Kermit — V4D(060) port of the Unix C-Kermit
VTek V2.3.1 — Tektronix graphics terminal emulator based on the VT-100 prog. V2.3 and contains latest 'arc' file compression
AmigaHost — V0.9 for Compuserve. Includes RLE graphics abilities & CIS-B file transfer protocol.
FixHunk — expansion memory necessity
FixObj — removes garbage characters from modem received files
Txt — filters text files from other systems to be read by the Amiga E.C.
addmem — executeable version for use with mem expansion article in AC v2..1
'arc' — file documentation and a basic tutorial on un 'arc'ing files
arcre — for makeing "arc" files E.C.

AMICUS Disk 18
Logo — Amiga version of the popular computer language, with example programs, E-D
Tv*Text — Demo version of the TV*Text character generator
PageSetter — Freely distributable versions of the updated PagePrint and PageIFF programs for the PageSetter desktop publishing package.
FullWindow — Resizes any CLI window using only CLI commands, E-D
Life3d — 3-D version of Conway's LIFE program, E-D
Defdisk — CLI utility to re-assign a new Workbench disk, S-E-D
Calendar.WKS — Lotus-compatible worksheet that makes calendars
SetKey — Demo of keyboard key re-programmer, with IFF picture to make function key labels, E-D
VPG — Video pattern generator for aligning monitors, E-D
HP-10C — Hewlett-Packard-like calculator, E-D
SetPrefs — Change the Preferences settings on the fly, in C, S-E-D
StarProbe — Program studies stellar evolution. C source included for Amiga and MS-DOS, S-E-D
ROT — C version of Colin French's AmigaBasic ROT program from Amazing Computing. ROT edits and displays polygons to create three dimensional objects. Up to 24 frames of animation can be created and displayed. E-D
Scat — Like Ing, windows on screen run away from the mouse, E-D
DK — Decays* the CLI window into dust, in Modula 2, S-E-D
DropShadow2 — Adds layered shadows to Workbench windows, E-D

AMICUS Disk 19
This disk carries several programs from Amazing Computing. The IFF pictures on this disk include the Amiga Wake part T-shirt logo, a sirteen-color hi-res image of Andy Griffith, and five Amiga Live! pictures from the Amazing Stories episode that featured the Amiga.
Solve — Linear equation solver in assembly language, S-E-D
Gadgets — Bryan Catley's AmigaBasic tutorial, S-D
Household — Bryan Catley's AmigaBasic household inventory program, S-D
Waveform — Jim Shields' Waveform Workshop: AmigaBasic, S-D
DiskLib — John Kennan's AmigaBasic disk librarian program, S-D
Subscripts — Ivan Smith's AmigaBasic subscript example, S-D
String, Boolean — C programs and executables for Harriet Maybeck Tolly's Intuition tutorials, S-E-D
Skinny C — Bob Riemersma's example for making small C programs, S-E-D
COMAL.h — Make C look like COMAL header file, S-D
EmacsKey — Makes Emacs function key definitions by Greg Douglas, S-D
AMon 1.1 — Snoop on system resource use, E-D
BTE — Bard's Tale character editor, E-D
Size — CLI program shows the size of a given set of files, E-D
WinSize — CLI window utility resizes current window, S-E-D

AMICUS Disk 20
Compactor, Decoder — Steve Michel AmigaBasic tools, S-D
BobEd — BOB and sprite editor written in C, S-E-D
SpriteMaster/I — Sprite editor and animator by Brad Kiefer, E-D
Blit.ab — Blitter chip exploration C program by Tomas Rokicki, S-E-D
FPic — Image processing program by Bob Bush loads and saves IFF images, changes them with several techniques, E-D
Bankn — Complete home banking prog., balance your checkbook! E-D

AMICUS Disk 21
Target — Makes each mouse click sound like a gunshot, S-E-D
Sand — Simple game of sand that follows the mouse pointer, E-D
PropGadget — Harriet Maybeck Tolly's proportional gadget example, S-E
EHB — Checks to see if you have extra-half-bright graphics, S-E-D
Piano — Simple piano sound program
CelScripts — Makes cel animation scripts for Aegis Animator, in AmigaBasic

This disk has electronic catalogs for AMICUS disks 1 to 20 and Fish disks 1 to 80. They are viewed with the DiskCat program, included here.

AMICUS Disk 22
Cycles — Light cycle game, E-D
Show_Printll — Views and prints IFF pictures, including larger than screen
PrtDrvGen2.3 — Latest version of a printer driver generator
Animations — VideoScape animations of planes and boing ball
Garden — Makes fractal gardenscapes
BasicSorts — Examples of binary search and insertion sort in AmigaBasic

AMICUS Disk 23
An AMICUS disk completely dedicated to music on the Amiga. This disk contains two music players, songs, instruments, and players to bring the thrill of playing "Big Sound" on your Amiga
Instruments — a collection of 25 instruments for playing and creating music. The collection ranges from Cannon to Marimba
List INSTR — program to list the instruments DMCS will not load as well as list the origins for any instrument.
Music — a collection of 14 Classical pieces
1812Overture — The 16 minute classical feature complete with Cannon!
Three Amiga Music Players:
SMUSPlay
MusicCraft2SMUS
MusicStudio2SMUS

AMICUS Disk 24
Sectorama — A disk sector editor for any AmigaDOS file-structured device, recover files from a trashed hard disk. By David Joiner of Microllusions
Iconize — Reduces the size of IFF images, companion program, Recolor, remaps the palette colors of one picture to use the palette colors of another. Using these programs and a tool to convert IFF brushes to Workbench icons, make icons look like miniatures of the pictures.
CodeDemo — Modula-2 program converts assembler object files to inline CODE statements. Comes with a screen scrolling example
AmiBug — Workbench hack makes the same fly walk across the screen at random intervals. Otherwise, completely harmless.
BNTools — Three examples of assembly language code from Bryce Nesbitt:
1. SetLace.prog to switch interlace on&off.
2. Why, replace AmigaDOS CLI Why
3. Loadlt, prog to load a file into memory until a reboot. (Only the most esoteric hackers will find Loadlt useful.)
Monolace — CLI program resets Preferences to several colors of monochrome & interlace screens. C source is included, works with DisplayPref, a CLI program which displays the current Preferences settings.
BoingMachine — A ray-traced animation of a perpetual motion Boing-making machine, includes the latest version of the Movie program, which has the ability to play sounds along with the animation. By Ken Offer
Daisy — Example of using the translator and narrator devices to make the Amiga talk. It is written in C.
QuickFlix — Script-driven animation and slideshow program flips through IFF images.
BMon — System monitor AmigaBasic program ; perform simple manipulations of memory.
Moose — Random background program, a small window opens with a moose resembleing Bullwinklesaying witty phrases user definable.
DGCS — Deluxe Grocery Construction Set, simple Intuition-based prog for assembling and printing a grocery list.
The Virus Check — directory holds several programs relating to the software virus that came to the US from pirates in Europe as detailed in Amazing Computing V2.12. Bill Koester's full explanation of the virus code is included. One program checks for the software virus on a Workbench disk; the second program checks for the virus in memory, which could infect other disks.

AMICUS Disk 25
Nemesis — Graphics demo pans through space towards the mythical dark twin of the sun with wonderful music and space graphics.
The KickPlay directory holds text that describes several patches to the Kickstart disk. For Amiga 1000 hackers who feel comfortable patching a disk in hexadecimal, KickPlay offers the chance to automatically do an ADDMEM for old expansion memory, as well as the ability to change the picture of the "insert Workbench" hand. A program is also included for restoring the correct checksum of the Kickstart disk.
KeyBird — BASIC prog edits keymaps, adjust the Workbench keymaps or create your own.
8ColorWB — Modifies the Workbench so three bitplanes are used, icons can have eight colors, instead of four, eight-color icons are included. Public domain program "zapicon" or "brush2icon" converts eight-color IFF brushes to icons, to use Deluxe Paint to make icons for this new Workbench.
BrushIcon — Converts brushes to icons (bizarr docs).
Egraph — Graphing prog reads [x,y] values from a file and displays them on the screen, similar to the same-named Unix program.
Keep 1.1 — Message-managing program for telecommunications, lets you save messages from an online transcript to another file, understands the message format of the national networks and several types of bulletin board software. Moves through the transcript and save messages
Kill.fastdir — Speed up directory access, it creates a small file in each directory on a disk which contains the information about the files, will also remove all the "fastdir" files from each directory. by CLImate's authors
The LaceWB program changes between interlace and non-interlace Workbench. Previously, you were forced to reboot after changing Preferences to an interlaced screen. This program flips between the normal and extended screen heights.
PW_Utility — A shareware utility for ProWrite users, changes margin settings and font types.
Guru — A CLI program, prints out probable causes for Guru mediations; C source included.
DiskWipe — Latest from Software Distillery, removes files from directories or disk drives, much faster than "delete."
Snow — AmigaBasic makes snowflake designs.
Mlist — Mailing list database.
Softballstats — Maintain softball statistics/ team records.
Dodge — Short Modula-2 program moves the Workbench screen around after a period of time, prevents monitor burn-in.

AMICUS Disk 26
Todor Fay's SoundScape module code from his Amazing Computing articles. The source to Echo, Chord, TX, and VU is included. The Lattice and Manx C source code is here, along with the executable modules.
Claz2 — Update of prog to convert IFF images to PostScript files for printing on laser printers
SDBackup — Hard disk backup prog with Lempel-Ziv compression to reduce the necessary number of disks.
TCB — Prints information about tasks and processes in the system; assembler source is included.
FunBut — Lets a function key act like a rapid series of left mouse button events.
DC — A handy program for people who use an Amiga 1020 5 1/4 inch drive as an AmigaDOS floppy. A Workbench program that sends a DiskChange signal to the operating system: instead of typing "diskchange df2:" over and over again, just click on the icon. C source included.
System config — File makes screen 80 columns wide of text in the Scribble! word processor.
Dick2Ram — 2 programs to move the Scribble! spelling dictionary to and from the RAM disk.
Lexical — Analyzes a text file and gives the Gunning-Fog, Flesch, and Kincaid indices which measure readability.
HexDump — Modula-2 program to display memory locations in hexadecimal.
Tartan — AmigaBasic; design Tartan plaids.
DirMaster — Disk catalog program.
BMP — plays 8SVX sampled sounds in the background while something else is happening in the Amiga, as your Amiga is booting, for example.
ShowPt — CLI program changes your pointer to a given pointer.
AMICUS 26 also has a collection of mouse pointers, & Workbench program to display them

SORRY...

Do to the ever increasing size of the Fred Fish Collection, AC will no longer be able to maintain a complete catalog of Public Domain Software in every issue. However, AC will continue to update this abrievated catalog with new additions to the library. A full catalog of every disk and program in the Amicus and Fred Fish Libraries is available in the current issue of:

AC's GUIDE TO AMIGA

At your local Amazing Dealer

Fred Fish Public Domain Software

Fred Fish Disk 179
DietAid — Diet planning aid to allow the user to compile lists of ingredients (recipes) and automatically compute calorie totals, etc. Update FF36. V3.1, binary only. by Terry Gintz
Dmake — Beta release of Matt's version of the UNIX make utiflty. Features multiple dependancies, wildcard support, and more. Includes source. By Matt Dillon
Excption — Exception is a set of error handling routines that provide a programmer with the ability to easily handle often difficult to implement routines. Routines such as no more memory, file not open, read/write error....etc. V0.6, includes source. By Gerald T Hewes
KickFont — For A-1000 owners, will permanently replace the topaz font on the kickstart disk with a font called "look". Includes a sample in the form of an IFF picture. V3.0, binary only. Also included is Benjamin Fuller's freely redistributable 'SumKick' program. By Greg Browne
Launch — Sample program showing how you can load and execute a program in the workbench environment, then return to the CLI. Includes source. By Peter da Silva
Regexp — A nearly-public-domain reimplementation of the V8 regexp(3) package. Gives C programs the ability to use egrep-style regular expressions, and does it in a much cleaner fashion than the analogous routines in SysV. Includes source. By Henry Spencer
TSnip — Very nice "cut and paste" type utility with lots of uses and functions. Features a pop-up intuition control panel, multiple font and color recognition, clipboard and pipe support and a couple of utility programs. V1.4a, source for support programs only. By John Russell
UnixUtil — A few CLI utilities, including some functionally similiar to the UNIX utilities of the same names. Included are: Wc, Head, Tail, Tee, Detab, Entab, and Trunc. Descriptions are given in the included '.doc' files. By Gary Brant

Fred Fish Disk180
Browser — A programmer's "Workbench". Allows you to easily and conveniently move, copy, rename, and delete files & directories from a CLI environment. Also provides a method to execute either Workbench or CLI programs. V1.6, update to FF134, binary only. By Peter da Silva
GeoTime — A couple of interesting "clock" type programs based on the "Geochron". Observe the earth's shadow scroll across a map or globe in real-time, based on the system clock. V1.0, binary only, shareware. By Mike Smithwick
GPrint — A black & white graphics print utility for Epson compatible printers. Command-line options allow several different print qualities and densities. Includes a couple of sample IFF files for printing. V2.03, binary only, shareware. By Peter Cherna
Jed — A nicely done, intuition-based editor that is quite user-friendly. Features word-wrap, auto-indent, newcli, alt buffer, split-window, keyboard macro, help, printing, and more. V1.0, binary only, shareware. By Dan Burns
NoVirus — Another Anti-Virus utility. This one features known and new virus detection, view boot block, save and restore bootblocks, several "Install" options and more. Written in assembly. V1.56, binary only. By Nic Wilson
RepString — Nice little CLI utility to replace any type of string in any type of file with another string of any type. V1.0, binary only, shareware. By Luciano Bertato
TrekTrivia — Very nice mouse-driven trivia type program for Star Trek fans. Contains 100 questions with additional trivia disks available from the author. Binary only, shareware. By George Broussard

Fred Fish Disk 181
AMXLISP — Amiga-ized version of the XLisp interpreter originally by David Betz. V2.00, includes source. By David Betz; Amiga work by Francois Rouaix
Bally — Amiga port of the former arcade game named Click. Lacks sound effects,promised for later updates. V0.1, binary only, shareware. By Oliver Wagner
Tracker — Useful debugging routines similar in function but more versatile to those of "MemTrace" on FF163. Will track and report on calls to AllocMem(), FreeMem() [or lack thereof!] among others. V0.0a (Alpha release). By Karl Lehenbauer

Fred Fish Disk 182
AMC — "Amiga Message Center". Scrolls a message from a text file across the screen on a colorful background. Similar to the "greetings" programs developed by European Amiga enthusiasts. V1.0, binary only. By Foster Hall
Edimap — A keymap editor. Allows you to read in an existing keymap file, modify it to suit your needs, and save it as a ready-to-use keymap. V1.0, includes source. Author: Gilles Gamesh
HR136 — An IFF file containing a chart showing every possible mixture of the sixteen basic palette colors. Also included are optimized and monochrome palettes along with several tips and techniques for using them with various paint programs. By Dick Bourne
Iconmerger — Intuition-based program to take any two brush files and merge them into an alternate-image type icon. V2.0, binary only. By Terry Gintz
Sam — Another IFF sound player with several command-line options. Includes several samples. V1.0, binary only. By Nic Wilson
SetFont — Allows you to change the system font with various command-line options. Cleans up all known bugs in FF75. V2.5, includes source in C++. By Dave Haynie

Fred Fish Disk 183
FixFd — A utility for Amiga assembly programmers. FixFd will read a '.FD' file and output a file that can be 'INCLUDE'ed rather than having to link with the colossal 'Amiga.Lib'. V1.0, includes source in assembly. By Peter Wyspianski
Mklb — Another example of building a shared library that evolved from "Elib" FF87. Also included is a library, Edlib, which contains several functions not included in the Manx standard libraries. Includes source. By Edwin Hoogerbeets with C-functions from several different authors

For PDS orders, please use form on page CIII
Visa and MasterCard is available on orders of $20.00 or more.

PCQ A subset implementation of a freely-redistributable Pascal compiler. Supports include files, external references, records, enumerated types, pointers, arrays, strings and more. Presently does not support range types, the 'with' statement or sets. V1.0, includes source and sample programs. By Patrick Quaid

Fred Fish Disk 184

BI A small brush to to C-code image converter, intended to be used from CLI. V1.0, binary only. By Terry Gintz

CardMaker A programmer's aid for creating card image data that can be used in any card game that uses the standard 52 card deck. V1.0, binary only. By Terry Gintz

DPS Demo version of a program that will allow you to take any IFF file and save it as a totally self-contained executable file, without the need for any IFF-viewers. V1.0, binary only. By Foster Hall

MouseUtil Intuition based program to allow you to change your mouse speed without having to go through preferences. V1.1, includes assembly source. By Luciano Bertato

Print Small print utility designed to replace the "copy <filename> to prt:" command. Opens a window displaying the filename being printed, length, and a status bar showing percent completed. Also includes an abort gadget. V1.0, binary only. By Luciano Bertato

VacBench This amusing little screen hack will "clean up" your WorkBench screen for you when it gets too cluttered! Binary only. By Randy Jouett

World A text adventure game similar to the Infocom adventures of Planetfall and Starcross. Quite large with a tremendous variety of responses. V1.02, includes source. By Doug Mcdonald, Amiga port by Eric Kennedy

Fred Fish Disk 185

Commodore IFF This is a copy of the official November 1988 Commodore IFF disk. All the files in the "documents" directory are in zoo file "documents.zoo"

Fred Fish Disk 186

A68k A 68000 assembler originally written in Modula-2 in 1985 and converted to C by Charlie Gibb in 1987. Has been converted to accept metacomco-compatible assembler source code and to generate Amiga objects. Includes source. This is V2.42, an update to FF110. By Brian Anderson; C translation and Amiga work by Charlie Gibb

Cards'O'Rama A simple game that let's you push your memory. It is played with a deck of 32 cards, grouped in 16 pairs. The cards are shuffled and then displayed at the beginning of each game. Your goal is to pick up as many pairs as you can, until there are no cards left on the screen. V1.0, includes source. By Werther Pirani

Qt2 A cute program that gives the time the way many people actually do, I.E. "it's nearly ten to five". Includes source in assembly. By Charlie Gibb

SimCPM A CP/M simulator for the Amiga. Simulates an 8080 along with H19 terminal emulation. Includes source. This is V2.3, an update to FF109. By Jim Cathey; Amiga port by Charlie Gibbs and Willi Kusche

Fred Fish Disk 187

Diskperf A disk benchmark program which runs on both Unix and the Amiga. This is an update to FF48, with bug fixes and more reliable measurements of the faster read and write speeds available under the new Fast File System. By Rick Spanbauer, enhancements by Joanne Dow

HackLite This is the latest version the Amiga port of Hack, with lots of Amiga specific enhancements and neat graphics. Now includes an easy to use installation program. This is HackLite V1.0.0, binary only. By Software Distillery

Mackie A versatile cli/macro-key initiator based on POPCLI with a unique method of "screen-blanking". I won't say more, just try it! V 1.13, includes source. This is an update to FF161. By Tomas Rokicki

SetCPU A program designed to allow the user to detect and modify various parameters related to 32 bit CPUs. Includes commands to enable or disable the text/data caches, switch on or off the '030 burst cache line fill request, use the MMU to run a ROM image from 32-bit memory, and to report various parameters when called from a script. V1.4, includes source. By Dave Haynie

Fred Fish Disk 188

BootIntro This program creates a small intro on the bootblock of any disk, which will appear after you insert the disk for booting. The headline can be up to 20 characters. The scrolling text portion can be up to 225 characters. V1.0, binary only. By Roger Fischlin

DiffDir Diffdir compares the contents of two directories, reporting on differences such as files present in only one directory, different modification dates, file flags, sizes, comments, etc. V1.0, includes source. By Mark Rinfret

ExecDis A disassembler comment generator program for the 1.2 Kickstart ROM exec library image. Generates a commented disassembly of the exec library. V1.0, binary only. By Markus Wandel

FastGro A fractal program, simulating Diffusion-Limited Aggregation (DLA) as described in the December 1988 Scientific American in the Computer Recreations column. This program is about an order of magnitude faster than the "SLO GRO" program described in Scientific American. V 1.0, includes source. By Doug Houck

FracGen A fractal generator program that generates fractal pictures from "seeds" that you create. This is unlike any of the other "fractal generators" I've seen. It can be used to load and display previously created fractal pictures, modify existing fractals, or create your own fractals. V 1.23, binary only, update to FF142. By Doug Houck

MemoryClock A clock program that shows the amount of free fast ram, free chip ram, as well as the time and date. Includes source in assembly code. By Roger Fischlin

MinRexx A simple ARexx interface which can be easily patched into almost any program. Includes as an example the freedraw program from FF1. Includes source. By Tomas Rokicki

Null A new dos device that behaves like "NIL:" but unlike "NIL:", it is a real handler. This makes it useful in lots of situations where "NIL:" cannot be used. V 0.0, includes source. By Gunnar Nordmark

TextDisplay A text display program, like "more" or "less", but about half the size and handles all screen formats (pal/ntsc, interlace/non-interlace, etc). V 1.1, binary only. By Roger Fischlin

Fred Fish Disk 189

Mackie A versatile cli/macro-key initiator based on POPCLI wit a unique method of "screen-blanking". I won't say more, just try it! Version 1.20, includes source. update of FF187. Author: Tomas Rokicki

NetHack This is part 1 of a two part distribution of NetHack, which was too large to fit on a single disk, even when zoo'd. Part 2 is on disk 190. Both parts, along with zoo to unpack them, are required to use or rebuild NetHack. V 2.3. Includes source. Author: Various; Amiga work by Olaf Seibert

Uedit V 2.4g shareware editor. Has learn mode, a command language, menu customization, and other user configurability and customizability features. Binary only, shareware. Update to FF 173 Author: Rick Stiles

Fred Fish Disk 190

GaryIcons A collection of more interesting and useful icons. Author: Gary Roseman

LBM2Image Takes an IFF picture and generates a C source module which can be compiled and linked with your program to display the picture with the intuition DrawImage function. Binary only. by: Denis Green

NetHack This is part 2 of a two part distribution of NetHack, which was too large to fit on a single disk, even when zoo'd. Part 1 is on disk 189. Both parts, along with zoo to unpack them, are required to use or rebuild NetHack. V 2.3 Includes source. Author: Various; Amiga work by Olaf Seibert

Fred Fish Disk 191

BlitLab Blitlab is a program which lets you experiment with the blitter, to your hearts content, in relative safety. It opens a workbench window with gadgets for all the registers of the blitter, and allows you to manipulate individual registers and perform blits on a magnified bitmap. V 1.4, an update to FF84. Includes source. Author: Tomas Rokicki

Blk A requester making tool employing various recursive algorithms including a recursive parser. It takes input text files and converts them to C-source for including as requester declarations. Update to FF152, with many enhancements. Includes source. Author: Stuart Ferguson

FileBootBlock This simple little program reads blocks 0 and 1 of a bootable disk and saves them as a program file that can be run (heaven forbid) or disassembled by programs like DIS or DSM. Includes source in assembly code. by: John Veldthuis

Spell A port of a Unix version of a freely distributable screen oriented, interactive, spelling checker. Update to FF54, with enhancements by Tomas Rokicki. V2.0.02, includes source. Author: Pace Willisson; enhancements by Tomas Rokicki

Pz15 Computer version of those cheap plastic puzzles with 15 white tiles numbered 1 through 15 and an empty square in a 4 by 4 arrangement. This one is more challenging since you can't solve it by just prying out the pieces. Includes source. Author: Mike Hall

Fred Fish Disk 192

Eval This package allows you to manipulate expressions. Currently its two main functions are evaluation and differentiation. It also does some basic simplifications (based on pattern matching) to make the result of a differentiation more presentable. Includes source. Author: David Gay

PacMan87 This is a nice little "pacman like" game with some new features like fire pits, stabbing knives, electric arcs and flame throwers, that must be avoided. Has three levels of difficulty, easy, medium, and hard. Sounds can be toggled on or off. Keeps a record of the top ten scores. Shareware, binary only. Author: Steve Jacobs and Jim Boyd

ReSourceDemo A demo version of ReSource, an interactive disassembler for the Amiga. This is a complete version except that the "save" features have been disabled. V0.36, binary only. by: Glen McDiarmid

Fred Fish Disk 193

KeyMapEd Allows you to change the KeyMaps used with SetMap This is a full featured editor providing support for normal, string and dead keys. The keyboard represented is from an A2000/A500 but it is fully compatible with A1000 keyboards. V1.02, includes source Author: Tim Friest

Zc This is a modified version of the Sozobon C compiler fromFF171. It has been modified to generate code compatible with the A68k assembler from FF186 and a new frontend control program makes it easy to use like the UNIX "cc" frontend. V1.01, includes source. by: Johann Ruegg; Amiga work by Joe Montgomery

Fred Fish Disk 194

Moria A single player dungeon simulation. The object of the game is to defeat the Balrog, which lurks in the deepest levels of the dungeon. You begin at the town level above the dungeon, where you may acquire supplies, weapons, armor, and magical devices by bartering with various shop owners, before descending into the dungeon to do battle. Amiga enhancements include pull down menus, graphics mode, pickup mode, a continuous move mode, a real time mode, a message wait time mode, as well as other modifications to improve overall playability and to take advantage of the unique features of the Amiga. V3.0, binary only, requires at least 1Mb of memory. Author: Robert Alan Koeneke and others. Amiga version by Richard Henderson and others.

Fred Fish Disk 195

MicroEMACS Version 3.10 of Daniel Lawrence's variant of Dave Conroy's microemacs. This is an update to the version released on disk 119. New features include multiple marks, more function key support, a better crypt algorithm, and end-of-word command, a command line switch for setting environment variables, new hooks for macros, a command to strip trailing whitespace, international-zation features like foreign language message support, horizontal window scrolling, much faster search algorithm, Amiga intuition support, and more. Includes source and extensive online documentation. Author: Dave Conroy, MANY enhancements by Daniel Lawrence

Fred Fish Disk 196

HamPics These are some of the most stunning digitized pictures yet for the Amiga. They were scanned at a resolution of 4096 by 2800 pixels, 36-bits per pixel, on an Eikonix 1435 slide scanner, cropped, gamma corrected, scaled, and converted to Amiga IFF HAM files. They are displayed with a special ILBM loader that handles overscan HAM images. Includes source for the display program. Author: Jonathan Hue

Fred Fish Disk 197

CTags Create a tags file from the specified C, Pascal, Fortran, YACC, lex, or lisp sources. A tags file can be used by a cooperating editor to quickly locate specified objects in a program's source code. Berkeley V4.7, includes source. Author: Ken Arnold, Jim Kleckner, and Bill Joy Ported to Amiga by G. R. (Fred) Walter

Find Find is a utility which searches for files that satisfy a given boolean expression of attributes, starting from a root pathname and searching recursively down through the hierarchy of the file system. Very much like the Unix find program. V1.2, includes source. Update to FF134 Author: Rodney Lewis

FixHunk A program to modify executable files to allow them to run in external memory. It forces all DATA and BSS hunks in the file to be loaded into CHIP memory. CODE hunks will still load into FAST ram if available. New features include an interactive mode to select where each DATA or BSS hunk will load into memory, support for overlays, support for AC BASIC compiled programs, and support for new hunk types as used by "blink". V2.1, binary only. Update to FF36. Author: D.J. James

Nro Another roff style text formatter. This is version 1.5, an update to the version released on disk 79. New features include generation of ANSI/ISO codes for bold, italics, and underline, more than one formatting command on a line, longer macro names, and many more formatting commands. Includes source. Author: Unknown, posted to usenet by Alan Vymetalik Many enhancements by Olaf Seibert

Stevie A public domain clone of the UNIX "vi" editor. Supports window-sizing, arrow keys, and the help key. V3.35a, includes source. Update to FF166. Author: Various, Amiga work by G. R. (Fred) Walter

Fred Fish Disk 198

Charon Charon is Bradley's entry for the First Annual Badge Killer Demo Contest. The text of the demo was written by Lord Dunsany (long before the Amiga). Bradley created the illustrations and animation. The sound track is a traditional Scottish tune "The Arran Boat", by: Lord Dunsany (1915), Bradley Schenck (1988)

Fred Fish Disk 199

ASimplex An implementation of the Simplex algorithm for solving linear programs. It uses the standardized MPSX-format for input data files. V1.2, includes source. Author: Stefan Forster

Csh V3.02a of a csh like shell derived from Matt Dillon's shell, V2.07. Includes many new or improved commands, some bug fixes, etc. Includes source. Author: Matt Dillon, Steve Drew, Carlo Borreo, Cesare Dieni

MIDIsolt A program to transfer sound samples between the Amiga and a Roland S-220. V1.0, binary only. Author: Dieter Bruns

Pyro A screen blanking program that goes beyond the normal blanking process. When there are no input events, pyro takes over and starts a little fireworks display in color. V1.1, binary only. Author: Steve Jacobs and Jim Boyd

SnipDemo Demo version 1.23 of signal processing program sold by Digital Dynamics. Binary only. Author: John Hodgson

Viewer A very small program for displaying IFF pictures of any resolution. This one is written in assembly code and is only 988 bytes long. Binary only. Author: Mike McKittrick

Fred Fish Disk 200

NotBoingAgain Dr. Gandalf's entry for the First Annual Badge Killer Demo Contest. It is an interlaced HAM animation with nicely integrated sound effects. It is a great visual pun on the original Boing demo, but to say anymore would ruin the effect. Binary only, requires 1 Mb of memory. Author: Dr. Gandalf (Eric J. Fleischer, MD)

Tank This is Vincent's entry for the First Annual Badge Killer Demo Contest. It is an animation of a "fishtank simulator", with sound effects and a cute twist. Binary only. Author: Vincent H. Lee

Fred Fish Disk 201

Draco Update to Chris Gray's Draco distribution for the Amiga.Enhancements include support for floating point, register variables, more optimization, improved call/returnstandard, etc. V1.2, an update to FF76. Requires documentation from FF77 to complete the distribution kit. Binary only. Author: Chris Gray

DropCloth DropCloth lets you place a pattern, a 2 bitplane IFF image or a combination of a pattern and image, into the WorkBench backdrop. This is version 2.4, an update to version 2.2 on disk 128. Shareware, binary only. Author: Eric Lavitsky

Fred Fish Disk 202

SlavicFonts A whole bunch of new fonts from Robin LaPasha. Version 1.0. Author: Robin LaPasha

Vlt VLT is both a VT100 emulator and a Tektronix (4014 plus subset of 4105) emulator, currently in use at SLAC (Stanford Linear Accelerator Center). Although the VT100 part was originally based on Dave Wecker et al.'s VT100, many enhancements were made. The program requires ARP, and it has an ARexx port. XMODEM 1K/CRC and Kermit protocol support also included. Version 3.656, binary only. Author: Willy Langeveld

Fred Fish Disk 203

Examples Assembly and C code examples, including some old favorites (like speechtoy and yachtc3) downcoded to assembly language. Includes a replacement for the official audio device, an example of creating a subtask, a rewrite in assembly of R. J. Mical's file requester, an example of installing a custom input handler ahead of intuition, and more. Author: Jim Fiore & Jeff Glatt

GurusGuide The source files for all examples published in the "Guru's Guide, Meditation #1: Interrupts" by Carl Sassenrath, the architect of the Amiga's low-level multitasking operating system and designer of Exec. Author: Carl Sassenrath

Isam A library of routines to access relational data base systems using the Index Sequential Access Method (ISAM). This is beta version 0.9, binary only. Author: Kai Oliver Ploog

Fred Fish Disk 204

FileReq A simple file requestor, written as an exercise by the author to see how easy it would be (it wasn't). Includes source. Author: Jonathan Potter

GnuGrep The grep program from the GNU project. Replaces grep lgrep, egrep, and fgrep. Currently does not expand Amiga style wildcards, so if you wish to scan multiple files you will need to use it with a shell that does this for you. Version 1.3, includes source. Author: Mike Haertel, James Woods, Arthur Olson, Richard Stallman, Doug Gwyn, Scott Anderson, Henry Spencer

HAMCu Installs a custom copper list for the current active view (usually workbench) that contains all the colours from 0x000 to 0xfff. A neat effect and an easy way to show off the color capabilities of the Amiga. Includes source. Author: Jonathan Potter

Image-Ed An shareware icon editor submitted by the author for inclusion in the library. Suggested shareware donation of $20. Version 1.8, binary only. Author: Jonathan Potter

JPClock A short clock program that is just packed with features. Includes source. Author: Jonathan Potter

MouseBounce A short hack/game that makes your mouse pointer bounce around the screen. The object is to close the MouseBounce window and exit the game. Each time you click the mouse button, the pointer speeds up. Includes source. by: Jonathan Potter

PopDir A small utility which "pops open" to help you look at the contents of a particular directory on demand. Version 1.4, includes source. by: Jonathan Potter

PopInfo A small utility which "pops open" to give you information about the status of your devices & memory. V 2.9, includes source. by: J. Potter

Teacher Teacher is a short, simple hack. I won't spoil the fun by telling you what it does. Includes source. Author: Jonathan Potter

Fred Fish Disk 205

Bally Amiga port of the former arcade game named Click. This version now has sound effects. Version II, an update to FF181. Binary only, shareware. by: Oliver Wagner

BattleForce A nicely done shareware game, submitted by the author, that simulates combat between two or more giant, robot-like machines. Binary only, version 3.01. Author: Ralph Reed

Chess A port of a chess game posted to Usenet. This is an update to the version first included on disk 96. It has been upgraded to use an Amiga Intuition interface. Version 2.0, binary only. Author: John Stanback; ported to Amiga by Bob Lewan Version 2.0 upgrades by Alfred Kaufmann

Fred Fish Disk 206

Brownian A demo based on both fractal theory and brownian motion. Includes source. Author: John M. Olsen

Hawk A stereo image of a hawk. Requires red/green stereo glasses to view. Author: Unknown (no documentation included)

MemFlick Treats all the memory in your Amiga like it was part of a bitplane inside a graphics display. Provides sort of a graphical picture of your memory usage. Binary only, by : Jim Webster

PeX A demo of the various graphics capabilities of the Amiga. Author: Unknown (no documentation included) PictureGarden Another demo, apparently in compiled basic. Author: Unknown (no documentation included)

StereoDemo A demo of stereoscopic graphics, written in assembly language. Requires red/green stereo glasses to view. Includes sources. Author: David M. McKinstry

Triple 3 demos of some of the Amiga's graphics and sound capabilities. Binary only. by: Tomas Rokicki

Fred Fish Disk 207

Coyote Gene's entry to the 1988 Badge Killer Demo contest. A very cute (and large) animation. Requires about 1900 blocks of disk space, so it is distributed in "arc format". Author: Gene Brawn

Fred Fish Disk 208

AsteroidField This is Michael's entry for the 1988 Badge Killer Demo Contest. It is a large animation of a spacecraft flying madly through an asteroid field (chased by unseen foes) that includes a couple of near misses. Author: Michael Powell

Fred Fish Disk 209

Bowl This is Vern's entry for the 1988 Badge Killer Demo Contest. It is a Sculpt-Animate animation that shows three colored balls flying in circles above a mirrored bowl. Rendering the animation took about 2 weeks. Distributed in zoo format because of its size (zoo program included for easy unpacking). Author: Vern Staats

Dps A program designed to work with the PrintScript program, a commercial PostScript interpreter for the Amiga, to provide a page previewer. V 1.1 and includes source. by: Allen Norskog

Fred Fish Disk 210

Calc A very nicely done scientific/programmer/plotter calculator. The scientific portion has most of the operations found on the more popular handhelds. The programmer portion has all the special hex/binary/decimal conversions as well as register operations like ASL, ROL, LSL, AND, OR, XOR, etc. The plotter portion will plot equations. Other features include 26 memories, full mouse or keyboard operation, pull-down menus, and iconization. V 3.0, binary only. by: Jimmy Yang

LabelPrint A program that allows you to easily print labels for your disks. Version 1.9, shareware, binary only (source available from author). Author: Andreas Krebs

NuHand An animation of a hand with fingernails scrapeing on a desktop, including sound effects. This is Bryan's entry for the 1988 Badge Killer Demo Contest. Binary only by: Bryan Carey Gallivan

Fred Fidh Disk 211

AmigaWave This is Allen's entry to the 1988 Badge Killer Demo Contest. It is an animation with sound effects by: Allen Hastings

Esperanto A keymap modification to usa1 which, in conjunction with the supplied slate.font, will allow one to type in Esperanto and Welsh, in any program that will use keymaps & fonts by: Glyn Gowing

Image-Ed An shareware icon editor submitted by the author for inclusion in the library. Suggested shareware donation of $20. V1.9, binary only. Fixes a serious bug in V1.8 on FF204. by: J. Potter

SignFont A keymap and font that will allow the user to be able to type in American Sign Language, provided that one knows the font. Author: Glyn Gowing

VirusControl A new virus detection and control program that checks disks during insertion, protects from link viruses, shows bootblock on a screen, periodically checks system vectors, controls access to files with a requester, etc. V1.3, includes full assembly language source code. Author: Pius Nippgen

Fred Fish Disk 212

Alice This animation is Carey's entry to the 1988 Badge Killer Demo Contest. Author: Carey T. Pelto

DiskSalv A disk recovery program for all Amiga file system devices that use either the Amiga Standard File System or the Amiga Fast File System. Disksalv creates a new filesystem structure on another device, with as much data salvaged from the original device as possible. Update to FF177. Binary only. Author: Dave Haynie

DogsWorld This animation is Charles' entry to the 1988 Badge Killer Demo Contest. by: Charles Voner

Fred Fish Disk 213

Cucug This animation of the Champaign-Urbana Commodore Users Group logo was submitted to the 1988 Badge Killer Demo Contest by Ed Serbe. by: Ed Serbe

Icons Almost 300 icons in eight (!) colors. Uses a special program to get an eight color workbench to display these icons, which were made with DPaintII and IconGen. Most icons are miniatures of the main screen of their corresponding programs, or the picture they show, made with "iconize" and "recolor" from FF85. by: Wolf-Peter Dehnick

Correction!

The article "A Look at PageStream" in June's AC (vol 4.6, p.35) was incorrectly listed as a review. This piece was originally planned and accepted as a tutorial on the workings of PageStream by Soft-Logic Publishing Corp.

As reported in the article, the author, Barney Schwartz was a beta tester for the program who also assisted in the completion of the product's manual. Mr. Schwartz has also completed several other articles for AC, including pieces on desktop publishing. With these credentials, Mr. Schwartz was an excellent choice for desktop publishing product tutorials or even a review, as long as his relationship with these companies was clearly stated. Mr. Schwartz made this statement in the second paragraph of his article.

Mr. Schwartz created his article while PageStream was still in advanced beta testing. It is AC's policy to refrain from reviewing a product in beta testing. However, sometimes a product is near completion and the beta version is practically error-free. If the company can reasonably assure AC of its intentions, we will publish the review with a statement of the product's status at press time.

While Mr. Schwartz did make these statements, the article had only been cleared as a tutorial. However, Mr. Swartz's zeal for PageStream flowed heavily throughout the article and, even though it was listed as "A Look at PageStream" and not referred to as a review in the layout, the article was incorrectly placed as a review in the Table of Contents for AC June '89.

According to Soft-Logic officials, Mr. Swartz received no monetary reward from Soft-Logic for his assistance on the program. He was given advanced copies of the program and several documents which were to be used in his efforts to edit the documentation.

Although the article refers to "minor bugs" and the fact that "corrected versions will be shipped to registered owners within a couple of weeks," numerous crashes of the program have been reported both within AC and by our readers. Soft-Logic official Mark Wetzler narrowed our initial problem down to an incorrect printer driver. (PageStream apparently requires a special driver to handle its printing with slightly different features than the standard Preferences file.)

We have requested a copy of the current PageStream being shipped to the public and, if possible, the beta testing version designed to correct any current problems. We have received the new PageStream, however Soft-Logic respectfully declined to provide AC with a copy of the beta version now in testing. We understand their desire for secrecy, yet we are unable to verify if future copies of PageStream will provide users with a completely "clean" product.

While we respect Mr. Schwartz's enthusiasm for the Amiga and PageStream, and we maintain that no product is ever 100% bug-free, we must agree with Soft-Logic that the current program is not as "error free" as reported. Soft-Logic is working to correct any outstanding defects, yet they are unable to provide us with a completion date. Please temper any buying decisions based on the previous article with these comments.

We apologize for any inconvenience or confusion this may have caused.

Fred Fish Disk 214

ArcPrep — ArcPrep prepares files and/or directories for archival with arc or any other program that can't scan through different directories and/or handle long filenames. V2.1, includes source. Author: Garry Glendown

MandelVroom — A Mandelbrot/Julia-curve generating program that features five numerical generators (integer, ffp, ieee, 020, and 020/881) in hand-crafted assembly for maximum speed, online mouse selectable help for all functions, generation of multiple pictures simultaneously, a sophisticated user interface with shaded gadgets, etc. Some of the other features include zoom, magnify, color-cycling, contouring, auto-contouring, histogram, statistics, presets, extra-halfbrite support, overscan, orbits, pan mode, and more. Requires 1Mb or more of memory. This is the source to V2.0, an update to FF78. A compiled binary, along with help files and example images, can be found on FF215. Author: Kevin Clague

MemDiag — A memory diagnostic program to identify addresses which produce memory errors, and a memory quarantine program which removes such defective addresses from the system's free memory list, until such time as the hardware errors can be corrected. Version 1.1, includes source. by: Fabbian Dufoe

RunBack — Another step in the evolution of Rob Peck's RunBackGround program, from disks 73 and 152. Allows you to start a new CLI program and run it in the background, then closes the new CLI. This version has been enhanced to use the NULL: device by Gunnar Nordmark (included), which is a "real" device, so it solves problems with previous versions of RunBack which used the Nil: "fake" device, causing many crashes. Includes source. Author: Rob Peck, Daniel Barrett, Tim Maffett

SmartIcon — This shareware program, submitted by the author, is an intuition objects iconifier. Version 1.0 is limited to iconifying windows, which is still very handy. It adds a new "iconify gadget" to each window, that when clicked on, iconifies the window into an icon in the ram: disk. This is the same version as released on FF134, but now includes the source code. Author: Gauthier Groult

Fred Fish Disk 215

MandelVroom — A Mandelbrot/Julia-curve generating program that features five numerical generators (integer, ffp, ieee, 020, and 020/881) in hand-crafted assembly for maximum speed, online mouse selectable help for all functions, generation of multiple pictures simultaneously, a sophisticated user interface with shaded gadgets, etc. Some of the other features include zoom, magnify, color-cycling, contouring, auto-contouring, histogram, statistics, presets, extra-halfbrite support, overscan, orbits, pan mode, and more. Requires 1Mb or more of memory. This is V2.0, an update to FF78. Source is available on FF214. by: Kevin Clague

Fred Fish Disk 216

BackDrop — Backdrop allows you to define a pattern which will then be displayed on the workbench screen in the normally empty area behind all the windows. Similar in concept to DropCloth, but this one does not require workbench to be loaded (and does not cohabit very well with workbench). Includes source. Author: Eddy Carroll

C64Emul — An April Fools spoof that turns your Amiga into a C64, or at least makes it look that way. Includes source. Author: Eddy Carroll

Cloud — A program that generates and displays fractal surfaces that look remarkably like clouds. Based on ideas from the book "Fractals" by Jens Feder. Binary only. Author: Mike Hall

PrtSpool — A DOS handler, a print program, and a control program that implement a print spooling system. Like PRT:, the DOS handler waits for stuff to be sent to it to be printed. The print program does line numbering and page headers. The control program handles administrative functions. Binary only. Author: Daniel Barrens

VirusX — Version 3.20 of the popular virus detection/vaccination program. Features a test for 8 new viruses since the 3.10 version on FF175. Includes source. Author: Steve Tibbett

Wanderer — A neat little game with graphics and sound, ported from the Unix version, originally written on a Sun workstation. The idea for Wanderer came from games such as Boulderdash, Xor, and the Repton games from Superior Software. Includes a builtin editor for extending the game by adding additional screens. V2.2, includes source. Author: Steven Shipway and others. Amiga port by Alan Bland

Fred Fish Disk 217

AntiCBS — An animation cooked up by Leo in protest of CBS's coverage of the Hacker's Conference in Oct 88. After reading the transcript I was angered enough to feel this needed widespread distribution, even though it is quite old. by: Leo 'Bols Ewhac' Schwab

Echo — A small replacement for the AmigaDOS echo that will do some special functions, such as clear the screen, delete to bottom of screen, scroll the screen, place the cursor at a particular location, and set the text style and/or color. Includes source. Author: Garry Glendown

InstallBeep — This program replaces the DisplayBeep function so that an IFF 8SVX sound is played instead of the screen flashing. The PlayBeep function runs as a task in the background and runs asynchronously so the length of the sound does not slow anything down. Includes a couple of sample sound files. Version 1.1, binary only. Author: Tim Friest and Don Withey

SnipIt — An input handler wedge which allows you to clip text from any window and then paste that text anywhere, as though you had typed it on the keyboard. You mark the text you want to "snip" using the mouse, and then use the mouse to "paste" the last snipped text into the active window, requester, or anywhere. Version 1.2, includes source. Author: Scott Evernden

SonixPeek — A utility to let you list all the instruments used by one or more Aegis Sonix score files. It can scan individual files, or search one or more directories, checking all score files in each directory. The output is a list of all the instruments you need to have present in order to be able to play the indicated score files. Includes source. Author: Eddy Carroll

Stevie — A public domain clone of the UNIX 'vi' editor. Supports window-sizing, arrow keys, and the help key. V3.6, includes source. This is an update to V3.35a on FF197. Author: Various, Amiga work by G. R. (Fred) Walter

Fred Fish Disk 218

EdLib — A library of additional functions for Manx. This is V1.1, an update to V1.0 from FF183. Includes source. Author: Edwin Hoogerbeets with C-functions from several different authors

Mandel — Another mandelbrot generator program, with bits and pieces of code from C. Heath and R.J. Mical. This is V1.3, an update to FF111. New features and improvements include an ARexx interface, coordinates in sight, more state info saved with a picture, batch files, programmable functions, and more plotting options. Includes source. Author: Olaf Seibert

Maze — A program that lets you build mazes and then solve them. Mazes can be trivial one level mazes to very difficult three level mazes. Version 1.2, includes source. Author: Todd Lewis

PcPatch — Patches for PCCopy and PCFormat from the EXTRAS disk, to allow reading, writing, and formatting of any kind of MS-Dos style disks, including 720K 3.5" diskettes. Binary only. This is an update to the version on disk 163. Author: Werner Guenther

Scanner — Scanner makes commented C code of all intuition structures in memory. The structures will receive correct pointers towards each other. Scanner starts looking at IntuitionBase, and follows all pointers, storing them in memory. When finished, it writes all the structures to the standard output. Version 1.0, includes source. Author: Stefan Parmark

Worm — An Amiga implementation of the classic "worms" program, based on an article in the Dec 1987 issue of Scientific American. You can specify the size and length of the worms, and the number of worms. Includes source. Author: Brad Taylor, Amiga port by Chuck McManis

Fred Fish Disk 219

DeepSky — A database containing information on 10,368 non-stellar objects, 600 color contrasting easily resolved double stars, 70 stars for setting circles, and misc white dwarfs, red stars, binaries, etc. The database is distributed in zoo format, and is about 1.2 Mb after extraction. V 5.0. Author: Saguaro Astronomy Club

Mv — A Unix style mv/cp/rm program that moves, copies, or removes files. Includes interactive mode, recursive mode, and force quiet mode. Copies file permissions, dates, and comments, supports arp style wildcards, supports moves across volumes, honors the delete bit. V 1.1, includes source. Author: Edwin Hoogerbeets

Fred Fish Disk 220

DNet — A link protocol that provides essentially an unlimited number of reliable connections between processes on two machines, where each end of the link can be either an Amiga or a Unix (BSD4.3) machine. Works on the Amiga with any EXEC device that looks like the serial.device. Works on UNIX with tty and socket devices. Achieves better than 95% average throughput on file transfers. This is V2.0, an update to FF145. Includes sources for both the Amiga and Unix versions. Author: Matt Dillon

To Be Continued.....

In Conclusion

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FF69	FF70	FF71	FF72	FF73	FF74	FF75	FF76	FF77	FF78	FF79	FFNA	FF81	FF82	FF83	FF84	FF85
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